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SERBIA - GEOGRAPHICAL ASPECTS OF DEVELOPMENT AFTER 1990

SRBSKO - GEOGRAFICKÉ ASPEKTY VÝVOJE PO ROCE 1990

Diploma Thesis

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I state, that I made this thesis on my own, only with the help of listed literature.

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signature

I thank my supervisor RNDr. Jiří Tomeš, PhD. and other members of the Department of Social Geography and Regional Development for valuable advices, impulses and corrections regarding my work. I would also like to express my gratitude to the staff of the University of Novi Sad for the help with my research in Serbia.

Contents

List of tables, graphs, pictures and annexes

Tables:

Graphs:

Pictures:

Annexes

List of abbreviations

ALBG	Average Linkage (Between Groups)
DDI	development deficiency index
din.	dinar (RSD)
DOS	Democratic Opposition of Serbia
DS	Democratic Party
DSS	Democratic Party of Serbia
EA	economic aggregate
EAR	European Agency for Reconstruction
EBRD	European Bank for Reconstruction and Development
EU	European Union
EULEX	European Union Rule of Law Mission in Kosovo
FDI	foreign direct investment
FRJ	Federal Republic of Yugoslavia
GDP	gross domestic product
ICTY	International Criminal Tribunal for the former Yugoslavia
KFOR	Kosovo Force
KMO	Keyser-Meyer-Olkin Measure of Sampling Adequacy
mio.	million
NATO	North Atlantic Treaty Organization
NI	national income
nr.	number
NUTS	Nomenclature of Territorial Units for Statistics
OSCE	Organization for Security and Co-operation in Europe
p.	page(s)
p.c.	per capita
PCA	principal component analysis
RZS	Statistical Office of the Republic of Serbia
SAA	Stabilization and Association Agreement
SAP	Stabilization and Association Process
SFRJ	Socialist Federal Republic of Yugoslavia
SIEPA	Serbia Investment and Export Promotion Agency
SKGO	Standing Conference of Towns and Municipalities in Serbia
SME	small and medium enterprises
SPS	Socialist Party of Serbia
SRS	Serbian Radical Party
UÇK	Kosovo Liberation Army
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNMIK	United Nations Mission in Kosovo
UN SC	United Nations Security Council
USA	United States of America

Abstract

The main aim of this work is to determine if typical processes of regional development during transition and transformation period, as they have been observed in other post-communist countries, are taking place in Serbia and, on the other hand, what processes are specific for the country. Three hypotheses are set: (1) economic convergence during times of industrial decline, (2) reproduction and deepening of north-south zonality and (3) concentration of economy being the dominant regional process during the periods of growth. The primary method employed in the work is examination of basic indicators of regional variability applied on GDP per capita and simple aggregate of employment and average wages. The findings are proved using principal component analysis and cluster analysis. Conclusion resulting from the empirical part are following: regional convergence was confirmed only during the first years of 1990's and during transformation was replaced by strong divergence typical for other post-communist countries. The north-south zonality appears to be strong, but the dominant determinant of regional development proved to be position in the settlement system hierarchy. The dominant regional processes of the transformation period are therefore equivalent to those observed elsewhere.

Keywords:

regional development, regional geography, multivariate analysis, Serbia

Abstrakt

Hlavním cílem této práce je zjistit, jestli se typické procesy regionálního rozvoje v průběhu tranzice a transformace, tak jak byly pozorovány v jiných postkomunistických zemích, odehrávají v Srbsku a na druhou stranu, jaké procesy jsou pro tuto zemi specifické. Tři hypotézy předpokládají (1) ekonomickou konvergenci v průběhu průmyslového úpadku, (2) reprodukci a prohlubování severo-jižní zonality a (3) to, že koncentrace ekonomiky bude dominantním regionálním procesem v obdobích růstu. Zakladní metodou uplatňovanou v práci je examinace jednoduchých indikátorů variability aplikovaných na HDP na hlavu a agregát zaměstnanosti a průměrných platů. Zjištění jsou dále prověřena za užití komponentní a cluster analýzy. Závěry vyplývající z empirické části jsou následující: regionální konvergence byla potvrzena pouze na začátku 90. let a v období transformace ji vystřídala silná divergence typická pro ostatní postkomunistické státy. Severo-jižní zonalita se zdá být silná, ale bylo prokázáno, že regionální vývoj je dominantně podmiňován pozicí v hierarchii sídelního systému. Nejvýznamnější regionální procesy tedy odpovídají pozorováním z jiných zemí za obdobných podmínek.

Klíčová slova:

regionální vývoj, regionální geografie, vícerozměrná analýza, Srbsko

1 Introduction

The development of regional inequalities during the post-communist transformation period is a frequent subject of study in the countries of middle, eastern and south-eastern Europe. In some cases, like the Czech Republic or Slovenia, the transformation is nearly finished, market economy is fully implemented and the level of economic development is coping with some old European Union (EU) members. Many other countries still face strong challenges, but possess good development potential and are included in the EU, which is a guarantee of stability and cooperation perspectives. Nevertheless, in the cases of Romania and Bulgaria the underlying structural and institutional conditions, required for EU accession are questionable. The rest of post-communist countries, if we exclude former Soviet Union, is referred to as the Western Balkans. This region consists of Albania, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and UNMIK Kosovo (or Republic of Kosovo)[1].

Most of the Western Balkans countries share a common burden of recent conflicts, nationalist policies or changing favour of international community. Step by step, during the 1990's, most of these old or newly emerging states entered the process of market and democratic transformation and set their course to EU integration but, often because of political reasons, none of them has finished the process yet. The most populated country of the region, Serbia, at that time in a loose federation with Montenegro, stayed in isolation the longest time, until the revolution in October 2000 overthrew nationalist dictator Slobodan Milošević. Although the newest transformation country, its economic prosperity and political stability is of vital interest for the whole region. Serb minorities in the neighbouring states (and the protectorate of UNMIK) can destabilize fragile relations between ethnic groups and lead to new clashes and conflicts.

This study of regional development can substantially contribute to understanding of the problematics of inequality in Serbian society and thereby prevent further divergence, that leads to social insecurity resulting in the rise of nationalist political entities. Serbia is the largest state in the Western Balkans with central position and influence on most of its neighbours. If its interests are to be

[1] From June 10th 1999 the area of former autonomous area within Serbia named Kosovo and Metohija was brought under the authority of United Nations Mission in Kosovo (UNMIK) with United Nations Security Council Resolution No. 1244. This province unilaterally declared independence, founding the Republic of Kosovo, on February 17th 2008, but this decision is strongly criticized and not recognized by Serbia, Russia and many more states including some EU members.

neglected in the stabilization programmes and initiatives for the region, success could not be reached. Therefore, this work should be perceived as a support for understanding Serbian needs for special regional aid and assistance, so that a balanced development ensuring continuation of EU association process can be reached.

Since the starting year of the study is 1990, special attention is given to deterioration of regional pattern during years of isolation and war. The transformation could be viewed from two points then, as a process starting a new regional order or a process leading to reappearance of pre-war regional hierarchy. It is the main aim of this work, to underline if typical processes of regional development during transition and transformation period, as they have been observed in other post-communist countries, are taking place in Serbia and, on the other hand, what processes are specific for the country. There is a plenty of factors that could raise expectations of distinct development in Serbia - from the unique character of Yugoslavian communism to unprecedented economic cataclysm in 1990's. Therefore, Serbia itself is a special case and this work attempts to find out if it is equally in the field of regional development, especially its economic dimension.

Three hypotheses have been set for this thesis.

1. In connection with the economic crisis of 1990's, decline of industry is expected. The decline is presupposed to influence especially the most developed regions and this would lead to reduction of regional disparities in the field of economy.
2. Inertia of historical patterns of development is expected in regional diversification - Vojvodina, which was for the whole 20th century considered the leading region, is supposed to keep its position, while the southern part will be stable as the least developed area in Serbia. Reproduction and deepening of north-south gradient is, therefore, set as second hypothesis of this work.
3. The main factor of development is expected to be position in the settlement system hierarchy. Mainly during the periods of economic growth, concentration of population and production into main metropolitan areas, above all that of Serbian capital Beograd, should rise dynamically.

The thesis is structured into six chapters. After a general introduction, summarizing the motivations, goals and hypotheses of the thesis, theoretical and methodological framework is set out. This chapter offers a general introduction to

the literature on the topic of regional development in Serbia and some theoretical concepts of regional development in general. Then, it describes the data sets used, basic characteristics of variability applied in the thesis and multivariate analyses methods, covering the calculation principles as well as the main outputs and means of their interpretation. The third chapter of this work contains some notes on general development in Serbia during the period in question. There are separate sections describing political development, economic development and specific topics closely related to economic geography of the country - regional policy, development of regionalization and decentralization and perspectives for EU integration. In the fourth chapter a study of regional development between 1990 and 2007 using simple analytical methods is presented, including international comparison. Serbian regional development processes and achievements are studied not only on the base of Gross Domestic Product (GDP)-like aggregates, but also using unemployment rate, wages, employment structure or demographic characteristics. The fifth chapter contains a multivariate analyses of regional development in Serbia. Methods employed in this work are principal component analysis (PCA) and cluster analysis, in which multiple ways of calculation are compared. These complex analytical methods serve to point out the integral development patterns of a wider set of indicators and to find a typological division of regions based on these patterns.

2 Theoretical and methodological framework

This chapter aims at explanation of the theoretical and methodological basis of the work. In first place, some main theoretical approaches to regional development relevant for the case of Serbia or often used by Serbian scholars are summarized. In the second part, some basic works about regional development in Serbia are presented. The third section starts the methodological considerations by presenting indicators used in the work. The fourth part explains some basic measures used to evaluate regional variability and concentration, fifth presents component analysis and sixth cluster analysis.

2.1 Main theoretical approaches to regional development

In the countries of middle and eastern Europe, the socialist period led to a considerable nivelization of regional differences. This environment offers an ideal basis for the testing of trends and factors of regional development in the following period of transformation. According to Adamuška (2008), the most frequently discussed questions are:

1. Convergence or divergence of development of regional differences. Most authors confirmed divergence tendencies, but the countries of Western Europe and the USA show contrary trends (Barro, Sala-i-Martin in Adamuška 2008). This points to some evolution in the regional development tendencies which corresponds with Friedmann's concept of stages (Blažek, Uhlíř 2002).

2. Factoral conditionalities of development. On the example of the Czech Republic, Dostál, Hampl (2002) distinguish three basic conditional factors of regional development after 1989: (1) Position of a region (its centre) in a national settlement system hierarchy. Pronounced is especially the duality between metropolitan and unmetropolitan regions. (2) Second factor is macroregional position of an area according to its distance from developed centres. In first place, it is a distance from capital, in second from foreign centres of development. (3) Third factor is inherited economic specialization from socialist period. It is typical for regions concentrating declining industrial branches and therefore has mostly negative consequences. The first two factors are of and integral character, the third one is strong in effect, but localized. Different approach towards factors of development can for example be spotted in Adámek, Csank, Žížalová (2006) where (1) human sources,

(2) research and development and inovations, (3) economic structure, (4) foreign direct investment and (5) transport and telecommunication infractructure are mentioned as the main factors of regional development.

3. Typologies of regions. It is a common method of summarization and organization of results of previous analytical study. Therefore, it is at least in some limited form common in most works about regional development.

This work combines all these approaches. In Serbian geography and regional economy, attempts to create typologies of regions prevail. Studies of factoral conditionalities of development are also common, but conducted in different manner than presented here. Aspects of Serbian scientific activity in the field of regional development will be analyzed in the next chapter. Here, only a selection of theoretical concepts that influenced the thinking about regional development significantly is presented. Theories of regional development are often categorized according to the convergence-divergence dichotomy.

Among the theories that expect regional covergence to prevail, neoclassical group is the most influential. It stems from growth models based on Cobb-Douglas production function, which explains production volume as a function of capital and labour, externally affected by technological progress (Blažek, Uhlíř 2002). Main implications of its regional development application are, that both capital and labour move to areas where there is a lack of them, basically in opposite direction, thereby acting as a nivelization mechanism. This theory was extended in a two-sector model, but later the Cobb-Douglas function proved to be inadequate in explaining regional growth and new theories started to emerge. The residuum between capital and labour inputs and production output accounted to considerable amount of the whole volume, according to Blažek, Uhlíř (2002) even 4/5 in some cases. This inconsistency was caused by labour productivity in first place and numerous attempts have been undergone to define the residuum precisely, Sollow's technological interpretation being vital and followed by various qualitative definitions.

Among authors referred to in Serbian literature one of the most prominent is François Perroux, the author of the theory of growth poles (Adamović 2002, Jakopin 2007b, Radovanović 2007). His concept belongs to a wider group of divergence core-periphery theories, which serve well also for the purposes of this work, as one hypothesis of this work expects that the hierarchically highly positioned centres of the country will be the development cores and the inertia of historical development

pattern as stated in the third hypothesis can also be interpreted as preserving dominance of economically stronger units.

In the theoretical section of Strategic Development Plan of Republic of Serbia, the concept of dominance, generally taken from Perroux's early work on economic sectors, is stressed: „Dominant economic units with their innovative spirit, as mainstays of technical progress, are engaged in ‚creative destruction' of the existing state, which always implies the existence of the domination effect, i.e. asymmetric and unequal relations between enterprises of uneven force... The domination phenomenon characterizes not only the relations between enterprises and affiliates in the specific economic environment, but relations between certain areas and zones, between national economies as well" (Jakopin 2007b, p. 67). In this publication, it is also stated that this process of spatial and sectoral concentration, caused by higher growth rates in specific sectors, is a prerequisite for spread of development into other areas: „Polarization effects precede and condition the emergence of the expansion effects" (Jakopin 2007b, p. 68).

Interesting theory, that could also have practical implications for Serbia, is the cummulative causation theory formulated by Gunnar Myrdal. He rejects the hypothesis of automatic stabilization of social system and states, that change does not cause reaction of opposite direction. On the other hand, it unlocks other processes, that amplify the initial change (Blažek, Uhlíř 2002). Although it is not initially meant for such situation, it could apply for some negative cummulative mechanism in Serbian regions, for example with respect to depopulation of eastern Serbia. These concepts of uneven development were further extended by John Friedmann, who introduced the term core-periphery. He based his theory on unequal distribution of power in economics and society, which results in such a structure of mutual relationships that is favorable for the core. Interesting is his division of economic development into four stages, where core-periphery model is the second. In later stages, he supposes the differences between regions to grow unproductive, resulting in limited convergence (Blažek, Uhlíř 2002).

To complete the spectrum of concepts of regional development, it is important to note that even in divergence and convergence theories existence of processes that counter the prevailing tendency is acknowledged. The neoclassical two sector model expects initial rise of regional differences because of dynamic development of stronger export sector in a region where it is based. And for example Myrdal's divergence theory of cummulative causation incorporates „spread effects", which are nevertheless expected to have lower impact. In Friedmann's

theory of polarized development convergence prevails in third phase of the model. Some theories are based on the fact that the processes of regional divergence and convergence have specific importance according to type of characteristic followed in certain case and development stage of studied society or economy.

For example Blažek, Uhlíř (2002, p. 182) state, that „there does not exist a clear trend towards convergence or divergence, but in different periods, spheres and different scales the development varies." Also Hampl (2001, p. 22) recognizes „rehomogenization processes according to ‚structural' signs (the city way of life, improving education) as well as rehierarchization processes according to ‚size and significance' signs, meaning the reproduction of asymmetry in the distribution of power and wealth or reproduction (or even amplification) of uneven geographical distribution of wealth and population itself." It is an important notion, that the more progressive phenomenon, the higher tendency towards divergence and heterogenization. Therefore, in this work, if divergence or convergence would be mentioned, it would always be bound to a specific indicator, because there is a plenty of others, that have because of their different character contradictory spatial development tendency.

In Serbian literature, some Soviet theories of regional development are applied sometimes. At least some basic concepts should be mentioned at this place, as they had vital influence on earlier generations of Yugoslav regional economists and thereby on the practice of regional policy in Serbia during the socialist period. In Radovanović (2007), theoretical concepts of specialization of production and complex development were described. The sectors of specialization are those that set the place of a region in teritorial division of labor and participate in inter-regional exchange of production or services. Complex of specialization sector gathers it together with complementary sectors (Alaev 1981). Extensive industrialization in Yugoslavia in socialist period had the characteristics of these concepts. Some centrally chosen sectors were favored and subsidized in certain regions with the aim of their development, often neglecting natural regional predispositions. Diversification of regional economy was generally deemed unnecessary. The concept of specialization thereby had its influence on later economic degradation of some areas.

2.2 Regional development in Serbian literature

As a country formed after World War I, Yugoslavia, originally the Kingdom of Serbs, Croats and Slovenes, inhereted very diverse regional patterns, as various

regions of the country were historically parts of different empires. Also, the process of independence seeking was a complicated and long-term one. Especially in Serbia it was going step by step incorporating various parts of the country in a time of nearly a century. Banat, Bačka and Srem, the regions of Vojvodina were over a long period of time part of Austro-Hungarian monarchy while the rest was initially peripheral part of Ottoman empire. Šumadija, western Serbia and Podunavlje were constituent parts of a strongly autonomous and later independent Serbia from first third of 19th century, while eastern Serbia got a special status of kneževina (princedom) in 1933. Stari Ras (Sanđak) and Kosovo and Metohija were freed from Turks in 1912, practically only in 1918. From the beginning of 19th century, some industrial development could be noted north of Sava and Danube, south of these rivers feudal system still prevailed. Even though, some evolution was going on, mainly in Beograd because of its strategic position as a transport node (Radovanović 2007).

After World War I, the politically unstable Kingdom of Serbs, Croats and Slovenes was unable to adress the challenge of regional disparities in the new country. The country suffered strong economic depression that resulted in the rise of ethnic tensions. From 1929, the country was a royal dictatorship administratively divided into nine districts (banovine) openly disregarding ethnic boundaries. When the Serbo-Croatian tensions were in 1939 at least partially solved by Sporazum aggreement, creating a new region (banovina) of Croatia with significant autonomy, it was already too late as the Second World War was closing in (Nation 2003).

2.2.1 Post World War II regional development in Serbia

In the post World War II period, regional disparities remained a major challenge and this time, they were addresed with more accent, as presented by the expression of Kidrić in document „On some problems of our industrialization – Economic problems of the Federal People's Republic of Yugoslavia" in 1948: „This misbalance is one of major disadvantages in the present economic development of our country. But not only that! The principle of brotherhood and unity that our country rests upon, categorically seeks to remove this misbalance. We can remove this misbalance in two ways: a general equalization on the basis of the existing economic position or by means of industrialization" (Kidrić in Jakopin 2007b, p. 68). Obviously, from the options proposed by Kidrić, the second was chosen as optimal and the regional policy was based on extensive industrialization.

The outcomes of this policy were widely discussed in the literature, although mainly at the level of Yugoslav federation and not individual republics or autonomous areas, as the measures against regional disparities were formulated on a higher level. As typical example, the works of Časlav Ocić could be named. Even though practically irrelevant in scale, they pose as exceptional works considering methodology. In his study „Affirming similarities and differences in development level of republics and provinces using cluster analyses" (Ocić 1981), Ocić uses cluster analysis agglomeration schedule on some characteristics previously constructed using factor analyses to find the regional patterns in various spheres of development. In his later works (Ocić 1994, Ocić 1998a, Ocić 1998b, Ocić 2003, Ocić 2004), he continues with similar methods, but he does not present any new extensive empirical studies on the territory of narrow Yugoslavia of 1990's, Serbia and Montenegro or Republic of Serbia using new administrative and statistical division. His main findings include the ineffectiveness of Yugoslav regional policy in fighting growing regional disparities and with respect to Serbia, affirmation of differences between its provinces during the period from 1950 to 1987 according to the level of economic development. While in the beginning, Vojvodina had its characteristics closer to the „south" of Yugoslavia, the less developed part, during the observed period it distanced itself from Central Serbia and formed a stable cluster with Croatia, representing its shift to the economic „north" (Ocić 1998a).

Although also concentrated mainly on the level of Yugoslavia and relations between its republics and provinces, Kosta Mihajlović in his „Regional reality of Yugoslavia" (Mihajlović 1990) dedicated some more space to evaluation of regional differences within republics. His research on this niveau was concentrated mainly on comparison of differences between the most developed and the least developed municipalities within republics and the rate of concentration of activities into capital cities. He discovered particularly low level of disparities in Vojvodina, ascribing it to the nivelizating effect of its developed agriculture, while in both Central Serbia and Kosovo i Metohija, the differences were higher. Researching multiple indicators led Mihajlović to finding, "that the differences between centre and periphery are the least for industrial employment, while they increase significantly when overall employment is considered and they are the greatest regarding income per capita. Therefore, it is relatively the easiest to demetropolize the industry, and the most difficult would be to accomplish that for tertiary and quarternary sectors." (Mihajlović 1990, p. 276) This also proves false prediction that forced spread of industry into less developed areas would lead to actual lowering of regional disparities in the production or income sphere. Mihajlović also concentrated on the economic lagging behind of Serbia as a federal republic, blaming the power struggle

in Yugoslavia, with general aim to keep Serbia weak to make the federation strong. Other proclaimed reason for backwardness of Serbia was its inability to execute effective politics because of its disadvantaged position after the adoption of Yugoslav Constitution of 1974. Because of this legal change, for any measure to be accepted in the Socialist Republic of Serbia, consent of its two autonomous provinces had to be sought. Vojvodina and Kosovo i Metohija did not need this consents from the Socialist Republic of Serbia when it came to legislative within their autonomous authority, therefore Central Serbia, at that time called Serbia proper, was in a disadvantaged position, when it came to balance of power. As Mihajlović (1990) notes, in the late years of federation some republics were leading their own regional policy, for example Slovenia or Macedonia and its effects seemed statistically relevant. In the case of Serbia, this practice was not executed, which might have been to some part caused by the complexity of legislative procedures.

2.2.2 Studies of regional development in Serbia after 1990

Already in the 1980's, Yugoslavia was fighting economic crisis caused by high indebtedness of the country and ineffective central government. When the economic dissolution of Yugoslavia started in the late years of the decade, the problem of economic survival was gaining on importance. But regional development still remained a topic as studies summarizing the failure of Yugoslav regional policy were written. This was the case of above mentioned by Mihajlović (1990) or some by Ocić (1998b).

The actual dissolution of Yugoslavia caused a total breakdown of Serbian economy, as the country was isolated by international sanctions and impoverished by ineffective government policy. In this situation regional development was mostly neglected and studies of contemporary processes were not published often. More attention was given to search for systematic solutions of regionalization and regional policy (Derić, Perišić 1995, Derić, Perišić 1996, Devetaković 1994, Ocokoljić 1997, Stojković 1996) in changed context of narrow Yugoslavia - Serbia and Montenegro were the only republics left in federation.

After the revolution in October 2000, regional development was again a topic of numerous publication, often with respect to Serbian perspectives of European integration. In political practice, regional development was generally neglected until recent years. The evolution of legislation regarding regional development is analyzed in chapters 3.4 and 3.5.

Even in the literature which emerged after 2000, there is not a lot of attempts to characterize the processes of regional development in foregone decade. The crisis of 1990's was acknowledged as a serious burden, as a specific of Serbia among other transformation countries. In Mitrović's (2007, p. 135) words: „A whole one decade of slump hardly has any precedent in history: it is hard to find a society which would in only ten years develop such an all-round backwardness. What more happened in our economy in that period: autarchic status, naturalization of economic life, criminalization, various shortages and unliquidities - simply put, it was a crisis that does not have much in common with periodic crisis of market economies, about which Schumpeter said that they by creative destruction create preconditions for new rise." This description of situation in Serbia in 1990's is vivid, but no clue about the regional development pattern changes in the period are given.

Some empiric evidence of regional aspects of the crisis, specifically in industry, is presented in the article „Structural changes and regional differentiation of industry in Serbia in the period of transition (1988 - 2005)" (Grčić, Ratkaj 2006). It uses shift-share analysis to explain the influence of the structure of industry, using employment in industrial sectors, on changes in regional pattern. The results show „catastrophic model of transition and extensive model of industrialization. The model was based on resource intensive and energetically intensive sectors of industry, on unequal development with respect to sector structure. Sectors of heavy industry and energetics, metalurgy and basic chemistry were dominating" (Grčić, Ratkaj 2006, p. 104). The analysis was performed on municipality level, so the cartogram representations of results were mosaic-like. Even though, it was notable that the biggest industrial centres suffered the highest decrease of employment in industry. Nevertheless, it is important to mind that employment change does not have to follow change in productivity. The longer period selected (although it is questionable to call it transition as the only reasonable attempts to change institutional framework during the first 12 years of the period were unsuccessfully proposed by the last federal government of Ante Marković), is quite fitting, because 1988 is the year when a decline in employment started to take effect and it lasted until the end of the period, with 2005 already showing signs of reversal of the trend.

In „Strategy of regional development of Serbia" (Rosić 2004), extensive analysis of the stance of industry on the level of districts in 1991 and 2001 is also presented. Used indicator, „relative density of industry", is an aggregate of share of region's industry in total GDP and in the total number of employees in Serbia divided by its share in total population and area. On uneven distribution of industry

in 1991 points the fact, that two thirds (17) of districts had this density below average. In 2001, this number decreased to 14, indicating nivelization of industrial product and employment in Serbia. Relatively positive development was realized in 13 districts and negative in 12, which further supports this thesis. It suggest, as well as Grcić, Ratkaj (2006), that the main industrial centres suffered the most significant decline, which would have been even stronger if the period stretched a few years further into 21st century, as in 2001 influence of over-employment in unproductive industrial sectors twisted the figures in favor of declining industrial regions, whose empoyment was kept artificially full as a measure of social support for their workers.

Most of the recent analyses of regional development are based on evaluation of single year datasets and thereby measuring current state of regional disparities. One of the most common conclusions is, that the level of heterogenity in Serbia belongs to the highest in Europe (Supić 2007, Austrian Development Cooperation 2006, Jakopin, Radosavljević, Tontić 2003). The indicators used to prove this are often ratios between the most developed and most underdeveloped municipality using GDP or National Income (NI), which provides striking disparities around 1:20 and often further rising, but it is somewhat confusing and vague taking into account just two extremes.

Other important fact often accentuated in the literature is the specific and serious problem of demographic decline in Serbia. Rosić (2004) points to its three aspects - depopulation of rural areas, intra-regional demographic differentiation and atomization of settlements in underdeveloped rural areas. Mitrović (2008) indentifies demographic movements from countryside and negative rates of population growth as the biggest problem that Serbia faces currently. The Regional Development Strategy of the Republic of Serbia (Jakopin 2007b) recognizes three main processes forming the overall demographic decline: total depopulation, natural depopulation and demographic ageing, and analyzes all these aspects more thoroughly, resulting in identification the eastern part of Serbia as especially afflicted. Filipović (2007) analyzed the impact of migration on the demographic regression in this region and found out that the main difference between eastern Serbia and the rest of the country lies in higher rate of cross-border emigration. In 2002, 11,6 % of inhabitants of eastern Serbia were outside the country, while in the whole Central Serbia this share amounted to 6 %.

Beacause of its importance, demographic factor is often included into aggregate analyses of regional development. This is the case of article „Selected

features of uneven regional development in Serbia" (Miletić 2006), which uses ranking according to a set of social, demographic and economic characteristics, mostly from year 2003. The findings show the influence of position in the settlement system hierarchy, with Beograd and Južna Bačka district, where the city of Novi Sad lies, as the most developed regions. The author also points out the advantage of regions on the borders with the EU, which could exploit the possibilities of cross-border cooperation. On the other hand, as the least developed were ranked the southernmost districts of Central Serbia.

Other complex analyses of regional development in Serbia is presented in „Politics and methods of regional development" (Radovanović 2007). He uses the method of quadratic I-distance, calculated from a set of five characteristics from years 2002 to 2004: social product per capita, employed persons per 100 people in productive age, share of non-agricultural population in total, number of physicians per 10 000 inhabitants and retail sales per capita. The analyses was performed on three levels - macroregional, district and municipality. The results confirmed domination of Beograd and Vojvodina in the regional pattern of Serbia with surprising districts being the least developed - Rasina and Kolubara, in central and northern part of Central Serbia. The ratio between the most and least developed unit showed increase with regard to scale - lowest difference of 3,3:1 was on macroregional level, on districts level it was 5,8:1 and on municipality level it was 12:1. Radovanović (2007) also states, that the differences between rural and industrial regions, except for Beograd, must have been higher before the dissolution of Yugoslavia, because agriculture did not suffer such a crisis as industry.

The most comprehensive analysis of regional development in Serbia was done by the Republic Development Bureau, which prepared „Regional Development Strategy of Republic of Serbia 2007 - 2012" (Jakopin 2007b) for the republic government. Separate analyses of demographic field, employment and unemployment, human development, infrastructure, regional competitiveness and privatization are featured. As an aggregate measure of development level, „development deficiency index" (DDI) is used to identify underdeveloped districts. This indicator is composed of five dimensions of development - economic (six indicators), demographic (two indicators), educational (two indicators), infrastructural (two indicators) and ecological (one indicator). Indicators are standardized to values between 0 (most developed) and 1 (least developed) and the DDI of a dimension or total is constructed as an arithmetic mean of corresponding indicators. The resulting ratio between most developed district of Beograd and the least developed Jablanica was 6,8:1. Besides Beograd, low level of

DDI was notable in Vojvodina - traditionally developed north, Nišava - main centre of south Serbia and Šumadija and Moravica district in central part of Serbia. The least developed according to DDI are regions from southern Serbia, eastern Serbia and the district of Mačva.

2.3 Indicators of regional development

When measuring regional variability and its development, it has to be decided what field will be adressed mainly. There are three dimensions of regional development considered usually - economic, social and environmental (Černe 2003, Jakopin 2007b). For the purposes of this study, economic dimension will be used as a basic measure of regional variability, represented by two main aggregates, gross domestic product per capita and economic aggregate.

2.3.1 Gross domestic product and national income

Regional GDP and similar aggregates are the most frequently used indicators of level of regional development. In Serbia, this figure was calculated by Statistical Office of Republic of Serbia down to the level of municipalities until year 2004 and then without a value added tax contribution for year 2005. Since 2006, because of changes in methodology according to European standards, this aggregate is no longer available. In the literature on regional development, GDP, mostly its per capita value, belongs among the most widely used characteristics (Miletić 2006, Radovanović 2007, Jakopin 2007b, Adamović 2002) showing productivity and economic development level. Nevertheless, according to Adamović (2002), it has some disadvantages. (1) Part of production is not included, (2) it doesn't respect interregional differences in prices and (3) doesn't take into account the movement of labour force - workers from outside of the region are likely to spend their wages in their home locality. In this work, GDP per capita will be one of the key indicators, as even though having some flaws, it aproximates level of regional economic development quite well and it has been published long enough using a consistent methodology covering the studied period with exception of the last three years only. The pronounced flaw of labour flows could even be taken as an advantage, because labour movement dynamics unveil real centers of economic power and are accompanying other demographic and economic movements.

As a substitute of GDP, because of easier and more detailed accesibility in statistical publication, national income (NI) is used. The figures are very close to those of GDP (often mentioned in statistical yearbooks as gross material product)

and the exact definition is that „national income stands for a new created value in the year and is represented according to the sectors of ownership and activities" (Municipalities of Serbia 2005, p. 346). Construction of regional NI in former Yugoslavia and its succesor Serbia and Montenegro, had its specifics. The method of calculation was based on material production and on a yearly survey of all enterprises. Non-corporate businesses were covered only by special surveys and their production figures are partly based on estimation, therefore the values can not be perfectly accurate.

2.3.2 Economic aggregate

As GDP, NI or any other similar measures were not published on regional level in recent years, some aggregate of accesible data has to be used. One such has been used in Hampl (2005) based on the combination of number of jobs in a region and average salaries and wages:

$$EA = w * e ,$$

$$EA(p.c.) = EA / p ,$$

where *w* are regional average salaries, *e* is number of employed persons in a region, *p* is population of that particular region a *EA* is the desired aggregate, for the use of this study called economic aggregate, *EA(p.c)* being its per capita value.

Table 1: Correlation of regional NI p.c. and EA p.c. 2000 - 2004 on the district level

Year	2000	2001	2002	2003	2004
Pearson correlation coefficient	0,64	0,73	0,84	0,80	0,82

Source: Municipalities of Serbia 2002-2006, own calculations

This approach is also possible in Serbia. Statistical Office of the Republic of Serbia provides both partial characteristics based on territorial princip, so it is possible to calculate the economic aggregate (EA) for the whole transformation period and thereby find a replacement for the NI data. Per capita levels of EA show mostly pattern very close to that of NI, as demonstrated in Graph 5, Graph 6, Table 1, Table 4 and comparison of Table 6 and Table 7. Nevertheless, there are a few major differences, mainly caused by specific position of Serbian economy at the beginning of a transition period with a lot of strategic companies in the process of restructuralization, therefore often keeping surplus paid labor and having low productivity. These discrepancies are lowering over time and with it, the correlation is getting more significant as presented in Table 1.

2.3.3 Complementary characteristics

For the purposes of component analysis, a wider dataset has been used to cover the economic and social dimension of development with more precision. The 21 characteristics used in the analysis were divided into five fields as follows:

- ECONOMIC INDICATORS
  1. NI p.c. 2004
  2. Unemployment rate 2007
  3. EA p.c. 2007
  4. Employment rate 2007
- DEVELOPMENT INDICATORS
  5. NI p.c. index 2004/1989
  6. Employment rate index 2007/1989
  7. EA p.c. index 2007/2001
  8. Unemployment rate index 2007/2001
  9. Employment in industry and mining index 2007/1989
- STARTING POSITION INDICATORS
  10. Employment in industry and mining 1989
  11. NI p.c. 1989
- STRUCTURAL INDICATORS
  12. Employment in progressive sector (banking and finance and real estate) 2007
  13. Employment in industry and mining 2007
  14. Employment in agriculture 2007
  15. Employment in industry and mining 2001
- DEMOGRAPHIC INDICATORS
  16. Annual population change between 1991 and 2002
  17. Natural increase 2007
  18. Ageing index 2002
  19. Education index 2002
- OTHER FACTORS
  20. Population density 2002
  21. Agricultural population share 2002

Economic indicators are supposed to cover the economic dimension of development. National income in 2004 presents reached level of production. 2004 was the last year, when this measure was published by the Statistical Office of the Republic of Serbia (Republički zavod za statistiku - RZS), so it does not reach the final year of this study, but some transformation changes should be covered by this feature. Unemployment rate is commonly used measure of economic development, indicating structural problems of regions and in Serbia often also transformation dynamics when compared with the production characteristics. The formula used in this study is:

$$u.r. = \frac{unemp.}{emp. + unemp.},$$

where *u.r.* is unemployment rate, *unemp.* is number of unemployed persons and *emp.* is number of employed persons. This methodology is proposed for example in Radovanović (2007). Following characteristic is economic aggregate in 2007, the ultimate measure of reached economic development, calculated as described in Chapter 2.3.2. Employment rate in 2007 measures economic activity of population, using formula:

$$e.r. = \frac{emp.}{p},$$

where *e.r.* is employment rate, *emp.* is number of employed persons and *p* total population of a region, used instead of population in productive age because of its easier accessibility in the whole period covered.

Development indicators were constructed as ratios of the final and initial value, both standardized by country average. NI p.c. index is counted using the figures for 1989 and the last accesible dataset from 2004 and represents change in production relative to country average during the whole period of crisis and first few years of transformation. Employment rate index covers the whole period observed. Those of EA and unemployment rate represent changes only during transformation, spreading between the years 2001 and 2007. Last index should cover changes in the sectors of industry and mining between 1989 and 2007, figuring as an indicator of relative changes in weights of regions in Serbian secondary sector.

As indicators of regional economic development level at the start of the studied period NI p.c. and employment in industry and mining in 1989 are used. The starting year of 1989 is chosen because the impacts of the crisis accompanying dissolution of Yugoslavia were not critical at the time.

Structural indicators represent sectoral composition of regional economy. Two datasets are used to represent the regional dispersion of industry. The figure of share of employees in industry and mining in 2001 represents secondary sector employment after the major crisis, that of 2007 covers the results of transformation, bringing forth the achievements of rationalization in this sector. Employment in progressive sector in 2007 is calculated as the share of employees in banking and finance and real estate sectors, which are the most limited to main metropolitan areas in Serbia. Employment in agriculture has specific meaning in Serbia, because the self-employed agricultural population is not covered by this figure. Therefore, its values for the year 2007 indicate level of commercialization of agriculture.

The set of demographic indicators describes one of the most critical problems in current Serbian regional development practice, depopulation and demographic decline. Annual population change between 1991 and 2002, the last census years, shows directly the impact of the crisis of 1990's on number of inhabitants in Serbian regions. Second measure, natural increase in 2007, represents population vitality in the recent years. Last two demographic indicators are based on data from population census in 2002. Ageing index is a ratio of population aged more than 65 years and population younger than 15 years multiplied by 100. Education index was constructed as following:

$$e.i. = \frac{s.e. + 3 * t.e.}{p_{15+}},$$

where *e.i.* is education index, *s.e.* number of inhabitants with secondary education, *t.e.* number of inhabitants with tertiary education and p_{15+} is population aged 15 and more years. Although it is included in demographic indicators, the regional distribution of education index is expected to be closer to economic indicators, as favorable education structure is a prerequisite of development of progressive activities.

In a group labeled other factors, population density according to 2002 census results is featured. It is used as a measure of concentration of population, which is supposed to be another condition for the development of hierarchically higher activities. As last indicator, the share of agricultural population in total is used. Its high value generally points to underdevelopment of a region. According to Municipalities of Serbia 2008 (2008, p. 299) agricultural population „is consisted of the persons who are by occupation: (qualified) workers in agriculture, fishing and forestry (market producers), farmers (producers for own needs) and other workers employed in agriculture, fishing, ... Also included are the persons supported by this category." This definition is wider than in the case of employees in agriculture and the coverage is thorough because the data are provided by census. Therefore, this characteristic represents the proportion of population depending on agriculture quite precisely and could be used as an indicator of rurality and general backwardness of regions.

2.4 Indicators of regional variability and concentration

To measure regional variability, standard statistical derivates are used in this work. The formula of arithmetic mean, that is mentioned later, is not presented

here because it is common characteristic that does not have to be described in detail. As the simpliest indicator of regional variability, range defined as a subtraction of minimum from maximum, is applied. For this case, values standardized by division with arithmetic mean and multiplication by 100 are used.

The basic indicator of variability used here is coefficient of variation, that is applied to „assess the relative extent of dispersion of data with regard to mean" (Hendl 2004, p. 97). In this work, it is appropriate because time series with different means or various indicators have to be compared. The formula is:

$$CoV = \frac{s}{\overline{x}} \times 100 ,$$

where *CoV* is coefficient of variation, $\overline{x}$ is arithmetic mean of all regions in a set and *s* is weighted standard deviation, calculated as:

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \overline{x})^2 p_i}{\sum_{i=1}^{n} p_i}} ,$$

where p_i is population of region *i*, x_i is a value of an indicator in region *i* and $\overline{x}$ is arithmetic mean of all regions in a set. In international comparison, with the exception of Serbia, unweighted standard deviation is used, with no multiplication by regional population and number of regions instead of total population. Coeffient of variation can range between 0 and 100, where 0 means no variability, when all values are average and 100 indicates maximum variability.

Other method of measuring variability or concentration is Gini coeffiecient. Its value represents twice the area between the graph of Lorenz curve and diagonal of a square with side length of 1. Gini coefficient of 0 indicates total equality, 1 stands for absolute concentration. There are more ways of calculation (Adamuška 2008), the most applicable one being:

$$Gini = \left| 1 - \sum_{k=1}^{k=n-1} (x_{k+1} - x_k)(y_{k+1} + y_k) \right| .$$

x_i and y_i are cummulated values of used indicators for individual cases sorted in increasing order. For better comparability with other measures of inequality mentioned in this chapter, the values of Gini index presented later are multiplied by 100.

2.5 Principal component analysis

There are more ways to analyze variability in a more complex matter, like correlation or regression analyses. But for explanation of regional differentiation based on a wider set of data, explanation of results of these methods would not be very comprehensive. One of other analytical methods is cluster analyses, that would be described later. Among its prerequisites is an orthogonal[1] set of variables, which are not very common to be found among basic indicators of regional development. Other way to perform the analyses of regional variability is factor or component analyses. Not only does it present comprehensively and extensively different patterns of variability in a dataset, but it also provides a perfect base for cluster analyses. There is a big difference in calculation of factor and component analysis, but the results they provide are often practically the same (Heřmanová 1991). Because of the simplicity of evaluation in statistical software SPSS, principal component analysis (PCA) is used in this work.

The basic idea of PCA is „identification and elimination of redundance of information contained in variables or groups of variables. The aim is to replace a high number of entering characteristics and their relations with a lower number of components - generally it is a reduction of m-dimensional non-orthogonal space into an r-dimensional orthogonal space ($r \leq m$) without a loss of information or only with its minimal loss... In component analyses, which replaces original variables with the same number of new uncorrelated variables, we try to reproduce correlation matrix with diagonal units equal to one. Ones at the diagonal represent the basic presumption of component analyses, that the general variability of a selected dataset is fully explained by chosen variables. Component analyses fragments general variability into basic, specific and random dimensions. It is being considered mainly as an empiric procedure searching for interconnected groups of variables" (Heřmanová 1991, p. 17, 20).

The aim of the procedure, therefore, is to create from m variables X_i new variables Z_j, which are not correlated. Those new variables are additionally sorted according to their variance[2], so that $Var(Z_1) > Var(Z_2) > ... > Var(Z_m)$. Variables Z_j are called principal components and are a linear combination of variables $X_1, ... X_m$ (Hendl 2004). In case that the input data are suitable for this type of analysis -

[1] Orthogonality means, that the vectors of variables form right angles.
[2] Variance is square of standard deviation.

which basically means that they are strongly correlated[1], variance of only first few principal components would be significant and a strong reduction of number of variables will be reached with most of the initial variability kept. The common PCA algorithm consists of (1) creation of correlation matrix with ones on diagonal, (2) extraction of eigenvalues[2] $\lambda_1, \ldots \lambda_m$ from the matrix and (3) calculation of eigenvectors $(l_{1p}, \ldots l_{mp})$ starting from highest eigenvalue λ_p so that $\lambda_p = \sum_{i=1}^{m} l_{ip}^2$ - this maximizes the conciseness of solution. For more details about the calculation, see Heřmanová (1991).

The number r of components actually extracted (calculated) and considered in further analysis can be chosen by various different measures (Heřmanová 1991), but for the case of this work, the criterium of $\lambda_p > 1$ will be satisfactory, confirmed by examination of a Scree plot graph that shows how the eigenvalues decrease depending on component number. The outcome is an unrotated matrix of component loadings l_{ip}, composed of above mentioned eigenvectors of components that fit the conditions for extraction.

This matrix is only one of the infinite number of possible representations of correlation matrix. Therefore, it can be transformed into an equivalent, but for interpretation more suitable solution. This is achieved using the rotation procedure - if we interpret the initial variables as vectors in m-dimensional space and components as axes set in this space, the meaning of this transformation is to rotate the axes as close to the vectors as possible. The rotation used in this work is VARIMAX. It is based on estimation that the easiest structure for interpretation is that with loadings close to 0 or 1. The calculation consists of defining a variance of square loadings and trying to maximize it for all components in a series of rotations. The result of this procedure is rotated matrix of component loadings - those are practically correlation coefficients between components and initial variables. By a multiplication of matrix of standardized initial variables and matrix of rotated component loadings, matrix of component scores for individual units is calculated, which is the final step. These are the new aggregate characteristics representing individual dimensions of overall variability that serve as a basis for cluster analyses.

[1] Statistical software SPSS offers two methods of determination, if the data are suitable - Keyser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. The principle of both of them is to approximate the common variability in a dataset. KMO is not a statistical test, its higher values should nevertheless indicate suitability for PCA. Bartlett's Test on the other hand is a proper test with null hypothesis that all the population variances are equal. If it is highly significant, the tested dataset can be considered suitable for PCA.

[2] Eigenvalue is such a value λ, that fits for the condition $|R-\lambda I|=0$. R is the input matrix - in this case correlation matrix. If the matrix has 1 on diagonal, there would be as many eigenvalues as the dimension of R and all of them would be higher than 0.

Besides component loadings and component scores, there are some more characteristics important for the interpretation of PCA. The share of total variability explained by a component *p* is calculated as:

$$\frac{\sum_{i=1}^{m} l_{ip}^2}{m} \cdot 100 .$$

Similarly, if squares of final component loadings are summarized for individual variables:

$$\sum_{p=1}^{r} l_{ip}^2 ,$$

the result shows the portion of variability of variable *i* explained by this concrete PCA solution with *r* dimensions. „In component analysis this is interpreted as a representation of a given variable in a solution (adequacy of solution)" (Heřmanová 1991, p. 39).

2.6 Cluster analysis

Cluster analyses is not a single one, but a group of methods. Their unifying characteristic is, that they all try to solve one problem. If we have a set of *n* objects identified by *p* characteristics, how do we divide them into *m* subsets (clusters), where $m < n$, so that every object would be in exactly one cluster and so that all the objects in one cluster would be „similar", while those in varying clusters would be „different"? „To ‚solve' this cluster problem, it is necessary to define the terms ‚similarity' and ‚difference' more precisely (‚quantitatively'). The solution of cluster problem relies on the grouping of *i*-th and *j*-th object into the same cluster, if their distance in *p*-dimensional space E_p defined by *p* characteristics of objects is ‚acceptably small' and into different clusters if their distance in E_p is ‚high enough'. It is necessary to think about what does distance of objects in E_p mean" (Ocić 1981, p. 758). A wide spectrum of distance measures can be used, for example Hammings distance, manhattan metric, Mahalanobis distance or Euclidean distance (Heřmanová 1991).

There are three prerequisites for cluster analysis, (1) prerequisite of mutual independence (non-correlation) of variables, which is solved by preliminary component analysis, (2) prerequisite of independence on units of measurement that is solved by standardization, in case of component analysis already performed and (3) prerequisite of identical importance of variables, which could be solved by

application of share of total variability explained in component analyses as weight, but for the use of this work, it is not deemed necessary as it would result in dominant position of first component in cluster analysis solution.

Hierarchical clustering in SPSS, that is used in this work, offers plenty of different clustering methods. What they have in common is, that in the beginning all the objects are considered as being single clusters with one member. A matrix of their distances is being constructed using selected method and those two with shortest distance are united in a single cluster with two members. Then, a new matrix of distances is calculated - again with selected method of distance calculation, but also with a specific algorithm appointing how a cluster with multiple objects should be looked upon. There are multiple methods how to deal with this. In this work, Ward Method was selected as the most appropriate. It is a different way of looking at the cluster problem. Instead of regular distance it uses hypothethical increase of variance if clusters would be united.

3 Political and economic development in Serbia

Third chapter focuses on general development of Serbian economic and political context since 1990. The main motivation for including this chapter was the complexity of development and frequent changes of institutional framework, which were to a large extent influenced by internal and external political situation. Some notes on the Milošević's dictatorship, wars connected with the dissolution of Yugoslavia, NATO bombardment of Serbia, democratic revolution and consequent transformation have to be added, because regional development has to be perceived in the context of general situation, especially when it is such a turbulent one. Also, the evolution of Serbian regional policy, decentralization and regionalization concepts is examined, as it represents the attempts to tackle the problem of regional disparities.

3.1 Brief characteristic of recent political development in Serbia

In the post World War II period, Serbia was a part of Socialist Federal Republic of Yugoslavia (SFRJ), which refused to submit itself under the Soviet leadership already in 1948 and developed its own course in the Non-Aligned Movement and with the so-called self-management socialism. The state was kept together by the personality of Josip Broz Tito, who managed to lower traditional interethnic tensions by politics of firm hand. When the federal communist party was strong, there was no problem, but soon after Tito's death on May 4th 1980 SFRJ slipped into an economic crisis and the republic communist leaderships gradually started to exercise autonomous politics. In the end, they shifted towards nationalism or let the opposition nationalist movements grab their power.

3.1.2 The break-up of Yugoslavia

The 1980's were period which uncovered a set of conditions, that directly led to the dissolution of Yugoslavia. First, the main unifying element in the state, Josip Broz Tito, died in 1980. After his death, wrong policies of communist industrialization and unreasonable borrowing in the period after World War II finally resulted in economic slump, reaching its top in 1989, when the Dinnar currency experienced hyperinflation. Decisive and consistent reforms were much needed, but this need was not appreciated by republic leaderships, especially Serbian, Croatian and Slovene, which blocked the legislative processes on federal level for their own

reasons. The main aim of Croats and Slovenes was continuing secession from the federation, first with the goal of transformation of SFRJ into a loose confederation. Because of major disagreements with Serbian leader Slobodan Milošević later they started to promote independence (Repe 2005). Serbia, indoctrinated with the „Greater Serbia"[1] ideology, called rather for centralization of Yugoslavia, as it felt impoverished by the 1974 Yugoslav constitution which introduced a requirement of full consent of its autonomous provinces for decision-making on the republic level.

In 1991, Slovenia and Croatia declared independence and thereby started the long bloody war connected with the dissolution of Yugoslavia. In 1993, there were only the republics of Serbia and Montenegro left in renamed Federal Republic of Yugoslavia (FRJ). Although the fighting avoided their territory, they were struck by the conflict deeply, as there were sanctions imposed on them. The rising influence of mafia and economic destruction were starting to threaten to overthrow the contemporary nationalistic regime (Čoček 2007). This unstable situation led Milošević to decision to join the negotiations about peace and future system in Bosnia and Herzegovina. The official leaders of FRJ, Croatia and Bosnia and Herzegovina were able to force the so-called Dayton Agreement, which ended the war in November of 1995. This peacemaking achievement saved some of Milošević's popularity in his country, as he managed to manipulate the rather negative results in his favor, and won him support from international community. Although there were some signs of Milošević loosing power like the partial loss of his party in local elections in 1996 and the consequent demonstrations, the opposition was not able to overthrow his government yet.

From 1974, the ethnically mixed province of Kosovo i Metohija, inhabited mainly by Albanians, enjoyed a considerable autonomy, which was abolished by ammendments to Serbian constitution in 1989. During the first half of 1990's, the resistance against violations of rights of Albanians from Kosovo was peaceful. But in 1996 the Kosovo Liberation Army (Ushtria Çlirimtare e Kosovës - UÇK) started its armed struggle with a series of terrorist attacks against military buildings, police stations, post offices etc. and in the beginning of 1998 gained control of a substantial part of the province. The counter-offensive of Yugoslav Army launched in June 1998 managed to strike the UÇK heavily, but the fighting raised attention of international community. The activity of USA in negotiations led in October 1998 to an agreement of special envoy Richard Holbooke and Slobodan Milošević, which

[1] Originally a 19th century concept promoting a creation of a single state entity in areas covering Serbia, large part of Croatia, Bosnia and Herzegovina and Vardar Macedonia. It was revived in 1986 in „Memorandum of the Serbian Academy of Sciences and Arts" that marked the rise of Serbian nationalism in the late 1980's.

promised return of military units to their positions before February 1998 and creation of a 2000 member strong Organization for Security and Co-operation in Europe (OSCE) monitoring mission. Nevertheless, none of the sides reached its goals. Some sporadic fighting resumed and ongoing incidents resulted in new negotiation round in Rambouillet between February and March of 1999. These talks brought no results, but served well as a pretext for military action of NATO, as the Albanian side was in the end forced to sign the proposed accord, while Milošević would not agree to a clause allowing the North Atlantic Treaty Organization (NATO) units free movement on the whole territory of FRJ (Nation 2003).

Following the crash of Rambouillet Accord, allied bombing campaign against Serbia started on March 24th 1999. The initial goal was to show the determination of NATO, so that Milošević would realize what is at stake and submit to the Rambouillet Accord. As soon as the operation started, the return of Yugoslav Army to Kosovo resulted in much broader exodus of people from the province. The bombing lasted for 78 days and was ended in June 10th 1999 with the United Nations Security Council (UN SC) Resolution No. 1244, practically a slightly changed Rambouillet Accord. Changed in exactly those places, which were initially points of disagreements with Milošević - right of NATO to operate freely on the whole territory of FRJ and the right for referendum about independence after five years were removed and Kosovo was acknowledged as an integral part of Yugoslavia, although its government had no authority on its territory.

The Resolution 1244 did not solve the problem of future status of Kosovo, which was the challenge for years to come. Just after the formal end of war on June 10th, the NATO units under the label of Kosovo Force (KFOR) were to take over the territory and prevent any violence. Nevertheless, after reverse ethnic cleansing only about one third of 200 000 pre-war Serb inhabitants stayed in Kosovo. The formal administration in province was performed by United Nations Mission in Kosovo (UNMIK)[1], which gradually passed some of its competences to local provisional institutions. Negotiations about the status of Kosovo started in 2005 under the leadership of UN special envoy Marti Ahtisaari.

After Serbian Parliamentary elections, on 2 February 2007, Marti Ahtisaari presented his plan for the future status of Kosovo. The main idea behind the plan, although not directly expressed, was building of independent Kosovo under international supervision. It was rejected by Serbs and supported by Albanians, in

[1] In December 2008, most of its competences were taken over by EULEX - European Union Rule of Law Mission in Kosovo.

UN SC it would not be approved by Russia. Other options never passed through negotiations. In the end, again shortly after elections in Serbia, this time presidential, on February 17th 2008 Kosovo provisional parliament unilaterally declared independence. This action was strongly opposed by Serbia and Russia and even the EU is not uniform in opinion on this act.

Other late Yugoslav dissolution process was going on in Montenegro. In 1990, pro-Serbian leadership was installed in the republic, but as the crisis connected with wars in the region started to worsen during the 1990's, serious discontent grew in the Montenegrin political elite. The president of Montenegro, Milo Đukanović, managed to manouver skillfully in the second half of the 1990's to distance his republic from the federation peacefully. Thereby, he even managed to avoid the war in Kosovo. In 1999, Serbia imposed economic blocade on Montenegro, but thereby only helped to cut their mutual connections (Gallagher 2003). The fall of Milošević in October 2000 enabled new negotiations on the future relations between the two Yugoslav republics left. In November 2002, a constitution of restructured federation, acquiring official name Serbia and Montenegro, was announced and on June 3rd 2006, after a successful referendum, Montenegro declared independence.

This way, Yugoslavia dissolved into 6 independent countries, its former constitutive republics. Kosovo, although it declared independence unilaterally, would be more appropriate to be adressed as under UN SC Resolution No. 1244. Considering the process of political break-up of Yugoslavia, only the area of Central Serbia and Vojvodina could be examined appropriately in this work, because the area of Kosovo was only covered statistically until the end of 1990's. Montenegro was exercising separate politics from 1998, making it hard to compare with Serbia in the following period.

3.1.2 Politics in Serbia after October 2000

The 1990's in Serbia were characteristic by economic crisis, Milošević's dictatorship and the dissolution of Yugoslavia, but the beginning of 21st century brought important changes. Unlike the years following Dayton agreement, Milošević did not have the favor of the international community. Therefore, further protests against the totalitarian regime were likely to succeed. The moment that managed to raise state-wide unrest were prematurely scheduled federal presidential elections on September 28th 2000. Some irregularities in the results led to mass protests peaking on October 5th, that led to overthrow of government

and declaration of results acknowledging Koštunica as the federal president. These results were further confirmed by the victory of the Democratic Opposition of Serbia (Demokratska opozicija Srbije - DOS) in parliamentary elections in Serbia in December 2000.

Nevertheless, the DOS coalition was formed from 18 parties with no regards to political differences between the subjects united therein. From the beginning DOS appeared unstable, especially the conflicts between the strongest entities, Democratic Party of Serbia (Demokratska stranka Srbije - DSS) led by Vojislav Koštunica and Democratic Party (Demokratska stranka - DS), whose leader Zoran Đinđić became the Prime Minister of Serbia, were notable. Already in August 2001, DSS left the government, which from now on did not have majority in parliament. This unfortunate situation „brought Serbia into a period of political unstability, whereby it still kept its image of high risk country which surely did not help to successful inclusion of Serbia into European integrative flows and consequently detered potential investors and business partners from possible cooperation" (Miladinović 2004, p. 395).

Further deterioration of the security situation appeared as Zoran Đinđić was murdered on 12 March 2003. „The shock that spread through Serbia clearly demonstrated the level of insecurity present in society, as well as the determination of organised criminal gangs to try to maintain their grip on the informal levers of power in the country. Đinđić was clearly an obstacle, and the assassination thus created the first political victim of the process of the tackling of organised crime in Serbia" (Fatić 2002, p. 7). This event led to escalation of the fight against criminal gangs that were serious problem in Serbia, but did not help the political parties to find a way to cooperate on wider political portfolio. The following parliamentary elections allowed only the wide coalition of DS, DSS and some minor parties to gain majority.

The result of the next elections, conducted in January 2007, was similar to those of 2003. Won by ultra-nationalist Serbian Radical Party (Srpska radikalna stranka - SRS), the only acceptable coalition to form the government was to consist of both the rivaling DSS and DS. But with the following failure of Kosovo talks and introduction of the Ahtisaari plan this coalition was condemned to failure. Koštunica's DSS proposed to cut on EU enlargement process and deepen the ties with Russia. On the other hand, DS insisted on continuation of the pro-European politics disregaring the progress in Kosovo case, although opposing Ahtisaari plan as well and insisting on Kosovo being an unseparable part of Serbia. In the

atmosphere of growing disagreement between political parties, presidential elections were scheduled on January 3rd 2008. From 2004, the President of Serbia had been Boris Tadić from DS, his strongest opponent this time was Tomislav Nikolić from SRS. Only the second round on February 3rd was closely won by Tadić. Soon afterwards, on February 18th, the Kosovo declaration of independence brought the demision of DS and DSS coalition government and new parliamentary elections were scheduled on May 11th 2008. The situation was tense, as the Kosovo declaration of independence was supposed to raise the preferences of nationalist parties. The EU tried to help the pro-European political spectrum by signing Stabilization and Association Agreement (more in Chapter 3.3). Whether this motivation was the cause or not, coalition For a European Serbia (Za evropsku Srbiju) led by DS surprisingly won the elections. Nevertheless, the results did not clearly play in hand of anyone.

The negotiations that followed were as hard as in the previous elections. There was a strong disagreement between Tadić and Koštunica - therefore a coalition of their parties was almost unthinkable. On the other hand, DSS did not deny future cooperation with SRS, but they needed more votes in the parliament to form a coalition. Everybody had to fight for SPS, former Milošević's party, and their partners in election coalition. In the end, SPS decided to join with DS, other pro-European parties and minority parties in a pro-European government.

3.2 General economic background of Serbia

The process of economic development in Serbia was closely following the political framework. Specific trends can be noted in the period of isolation and transition, strong economic influence had events like hyperinflation or NATO bombardment. It is important to underline the formation of national economy and describe its development, because these processes affected the regional differentiation significantly.

The initial situation at the end of 1980's was, despite a general economic decline in the decade[1], the most promising from the communist block. Yugoslavia was tied with Western Europe by trade and some agreements and had even approved some inflow of foreign capital (Uvalić 2000). The problem was, that further reforms faced the obstacle of decentralized decission-making. Some republic leadership did not have the will to support economic reforms on federal

[1] Between 1980 and 1990, social product (similar to GDP) per capita in SFRJ fell from 2630 UDS to 2081 USD. (Radmilović in Rosić 2001)

level - among them Serbia, because its aim was to fasten the grab of power in republic and centralize the SFRJ based on socialist economic system. This disagreements on federal level led to cutting on economic ties between individual republics, which practically destroyed their trade intercourse. From 1990, Serbia along with Montenegro and Serb controlled areas in Croatia and BiH was left as an autonomous economic unit.

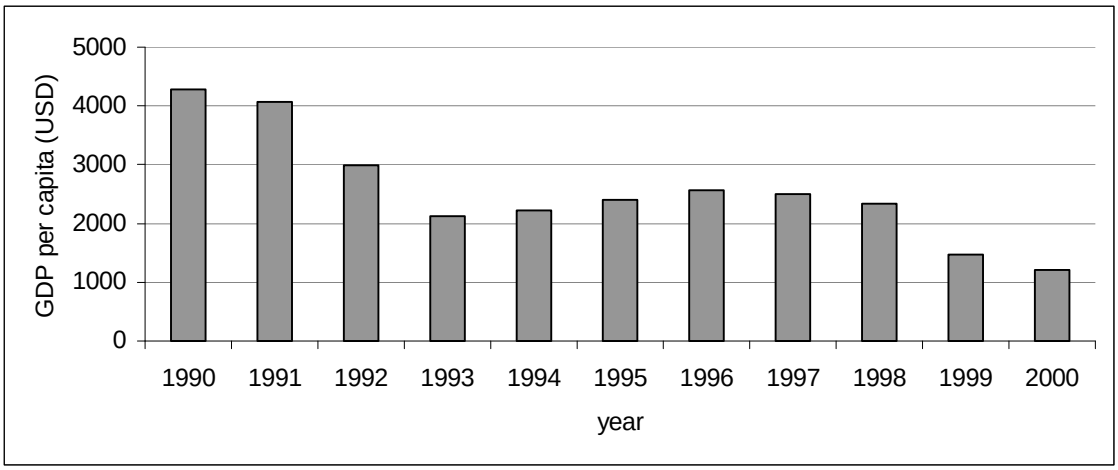
3.2.1 Economy under sanctions

Directly after the beginning of the dissolution process, there were circumstances that had strong negative influence on the economies of remaining Yugoslav republics. Immediately, strong inflationary impact was generated by the release of Dinar assets of seceded republics because of their monetary independence. Other problems were the reduction of territory of validity of the currency and lower income of the government because of dissolution of customs union. In longer term, the loss of low-cost imports from other republics and the loss of wide protected market in other parts of the country, disruption of traditional ties between partners, emergence of new trade barriers and lowered interest of foreign investors because of shrinking market took effect (Čoček 2007).

Reorientation of the Serbian market was effectively prevented by sanctions imposed on Serbia following participation of Yugoslav Army in war in Croatia. First, on October 11th 1991, weapon embargo came in power, then, on May 30th 1992 a full embargo was imposed on Yugoslavia, with all transshipments being blocked and all foreign assets being frozen later during 1992 and 1993. This combination of factors led to total destruction of Serbian economy - by the end of 1993, Gross Domestic (Material) Product fell to approximately 43 % of its 1989 level (Uvalić 2000). It is important to note, that the main cause was the decline of industry, as the agricultural production fell only to around 80 % of its pre-crisis level and maintained this value. In a decentralized, small farm system, it served as a built-in stabilizer of economy and prevented critical impacts of sanctions like famine (Babić 1999). Extensive monetary and fiscal policy, used to cover the war and war-related expenses led to one of the worst hyperinflations ever, that persisted during 1992, 1993 and January 1994. Along with it, pyramid schemes were set out to lure foreign currency reserves from the Yugoslav citizens. Dinkić (in Babić 1999) estimated the amount of money seized through these and other means of exploitation to 4,7 billion German Marks.

This economic collapse called for action, that was finally undertaken by the federal bank governor Dragoslav Avramović. His Program of Economic Recovery (Program ekonomskog oporavka) „contributed to cutting further negative trends in almost all areas of economy" (Rosić 2001). Nevertheless, there was no continuation of reforms. Avramović's program only temporarily prevented further socio-economic decline.

Graph 1: GDP p.c. in USD current prices in Serbia 1990 - 2000



Source: United Nations Statistics Division

Graph 1 should show the basic patterns of crisis and stabilization of national economy during the course of 1990's on data from international sources, as during that period system of national accounts of Yugoslavia underwent reform and domestic data are therefore harder to compare. The major decline is notable between 1991 and 1993, when the market of Yugoslavia dissolved, the international sanctions took effect and hyperinflation ruined the foreign currency reserves of Serbian citizens. Then the Avramović program was undertaken and from 1994 until 1997, a period of stagnation could be marked, as there was no progress in market oriented reforms, but also no crisis that would further worsen the economic situation. It is worth attention, that even the lifting of all economic and trade sanctions against Yugoslavia after the Dayton Accords, effectively being realized in 1996 did not lead to any positive trend in development of Serbian GDP. On the contrary, because of weak export, it brought deepening of deficit on balance of accounts.

Remarkable threat to country stability was nevertheless waiting all the way through 1990's. The political course of events during Kosovo crisis was described in Chapter 3.1.2, but its economic consequences were also extensive, as is visible in Graph 1. Using slightly different aggregate and area, FRJ had in 1999 GDP per capita in PPP 2580 USD, which was only slightly more than Albania and less than all

other southeast-European countries. Yugoslavian export decreased during the crisis by 50 %, import by 30 % and inflation started to rise again, although the level of hyperinflation was not reached again. Official value of unemployment was around 30 %, but it did not cover 20 % of surplus labor still employed in companies. Just because of NATO bombing, around 90 000 people lost their jobs and the estimates of this conflict's overall costs vary from 30 to 100 billion USD (Čoček 2007, Uvalić 2000).

Although there were some signals of reform oriented political development at the beginning of the 1990's, it mainly on federal level represented by the Prime Minister Ante Marković, and widely refused by the republic leaderships. Nevertheless, some reform laws were passed in Serbia even after 1991, but their applications was whether none or selective. Privatization, althought some laws on it were present, was realized immensely slowly and instead of it, high proportion of capital was moved from social ownership[1] to state ownership, increasing the control of government over economy. The main state controlled enterprises were led by people connected with Milošević and his regime and enjoyed plenty of privileges - selective bank loans, preferential interest rates, exclusive rights for import licences or access to foreign currency, various tax advantages etc. Corruption was widespread and new elites were recruited often from paramilitaries and other war criminals, that gained great power in the society. This way, politics practically merged with organized crime. To support the statements with some numbers, according to some estimates, informal economy created in the 1990's between 30 and 50 % of GDP (Babić 1999, Marinković 2004, Uvalić 2000). This is a very significant share of total, but because the regional grey economy would be extremely hard to cover, it is expected in this work that the spatial differentiation of informal sector would be proportional to that of formal sector.

3.2.2 Transformation

In the fall of 2000, democratic revolution in Serbia started a very hard path towards pro-market and pro-European reforms. The state was destroyed by a decade of sanctions, wars and catastrophic leadership, it was cast out from all international organizations and part of its territory was under international control. „Two or three year of unpaid social benefits created debts worth over 230 million EUR. Inflation reached 113 %, wages were nearly eight times lower than in 1990 and 63 % of households had to survive with income lower than the subsistence

[1] In the Yugoslavian system of self-management socialism, enterprises were owned by cooperatives of workers, that also participated on their control.

level. Most of big enterprises functioned as state monopolies, most of traffic and social infrastructure was in catastrophic condition and organized crime thrived in the country and cooperated with state authorities and security forces" (Čoček 2007, p. 17).

In the beginning, transformation was characterized by a strong will to perform market oriented reforms, but soon rifts in the political group of DOS appeared and the legislative process was hindered. The murder of Zoran Đinđić and break-up of DS and DSS marked the political polarization of Serbia, that was able to continue economic transformation only at the cost of hard compromises. Summary of the reform process is offered in Table 2, which presents some aggregates of transformation success estimated by European Bank for Reconstruction and Development (EBRD).

Table 2: Transition indicators of Serbia according to EBRD 2000 - 2008

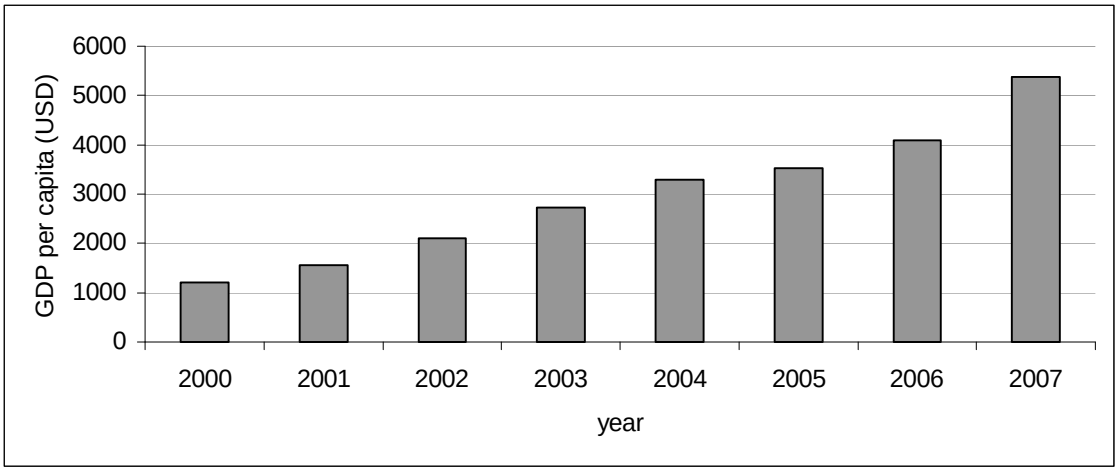
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Large scale privatisation	1,0	1,0	2,0	2,3	2,3	2,7	2,7	2,7	2,7
Small scale privatisation	3,0	3,0	3,0	3,0	3,3	3,3	3,7	3,7	3,7
Enterprise restructuring	1,0	1,0	2,0	2,0	2,0	2,3	2,3	2,3	2,3
Price liberalisation	2,3	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0
Trade & Forex system	1,0	2,7	3,0	3,0	3,0	3,3	3,3	3,3	3,7
Competition Policy	1,0	1,0	1,0	1,0	1,0	1,0	1,7	2,0	2,0
Banking reform & interest rate liberalisation	1,0	1,0	2,3	2,3	2,3	2,7	2,7	2,7	3,0
Securities markets & non-bank financial institutions	1,0	1,0	1,7	2,0	2,0	2,0	2,0	2,0	2,0
Overall infrastructure reform	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,3
Average index value	1,5	1,9	2,3	2,4	2,4	2,6	2,7	2,7	2,9

Sources: European Bank for Reconstruction and Development

The EBRD transition indicators measurement scale is 1 to 4+, where 1 represents rigid centrally planned economy, while 4+ means that the country reaches standards of an industrialized market economy. The nine fields of transition are evaluated according to EBRD country economists' assessments - therefore the rating could be subjective in some respects. It can be seen in Table 2, that Serbia still lacks reforms in the fields of large scale privatization, enterprise restructuring, competition policy, securities markets and non-bank financial institutions or overall infrastructure. On the other hand, significant progress was reached in small scale privatization, price liberalization and trade and forex system reform. The fastest progress was reached in first years of transition, when the will to reform was strong, but political problems led to a reform slow-down between 2003 and 2007. From the end of 2008, reform process is faster again, although not yet fully covered by the

EBRD measurement, because the new government seems to be productive in its determination towards EU integration.

Graph 2: GDP p.c. in USD current prices 2001 - 2007

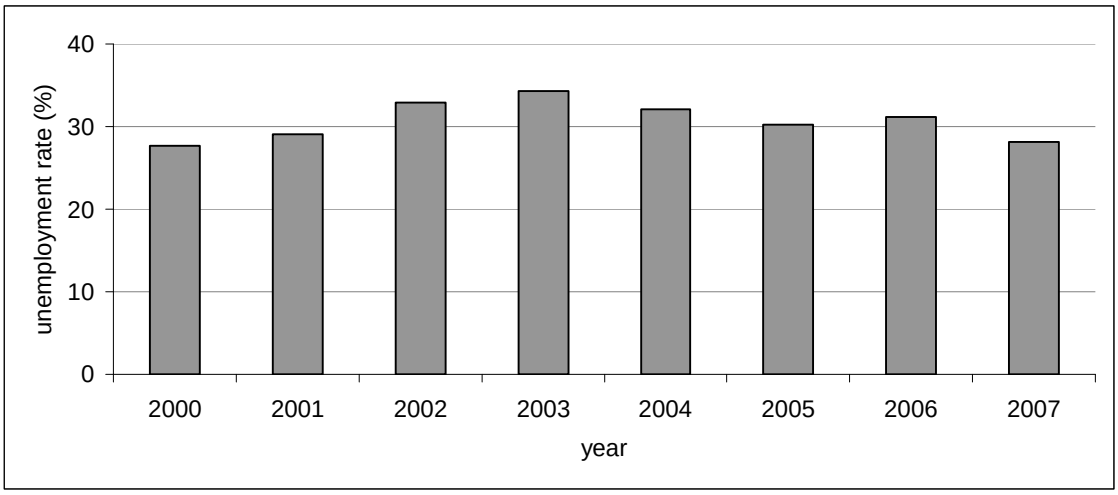


Source: United Nations Statistics Division

The GDP p.c. development, as presented in Graph 2, seems to follow a stable positive trend during the transition period. This tendency is quite specific for Serbia, as most post-communist transformations started with a sharp decline in production causing a significant reduction of GDP p.c. The case of Serbia was different. (1) The decline of production already took place during the 1990's during Milošević's dictatorship. The only difference was, that it was not because of or accopanied by market oriented reforms, but, on the contrary, it happened due to isolation and rigidity of political and economic institutions. (2) The end of sanctions itself was a strong stimulus to economy. (3) In 2000, it was only Serbia getting all the attention of international community because of a changing regime. To support the fall of last dictatorship in Balkans, international organizations were ready to unleash immediate economic support, that from October 2000 until the end of 2004 reached 3,2 billion EUR (Begović, Mijatović 2005). The featured GDP p.c. values are influenced by exchange rates, but total constant prices derivates in dinnars show also significant growth rates in all transition years, topping at 8,3 % in 2004 and exceeding 5 % in all following years (Statistical Office of the Republic of Serbia). It is hard to tell, how deep the impact of world economic crisis will be, but Statistical Office of the Republic of Serbia reported 3,5 % decrease in GDP in first quarter of 2009 and the government needs loans from IMF to overcome budget deficit. Therefore, the general depression of economy might result in considerable problems of fragile Serbian economy. It is also important to note, that while GDP grew, balance of payments had over the years very dangerous structure, especially the disproportion of low level of exports and high amount of imports is striking.

Therefore, Serbia's growth was achieved at the cost of foreign direct investments and development aid and in the time of crisis, these have to be replaced by loans, which could lead to high indebtedness if used inappropriately.

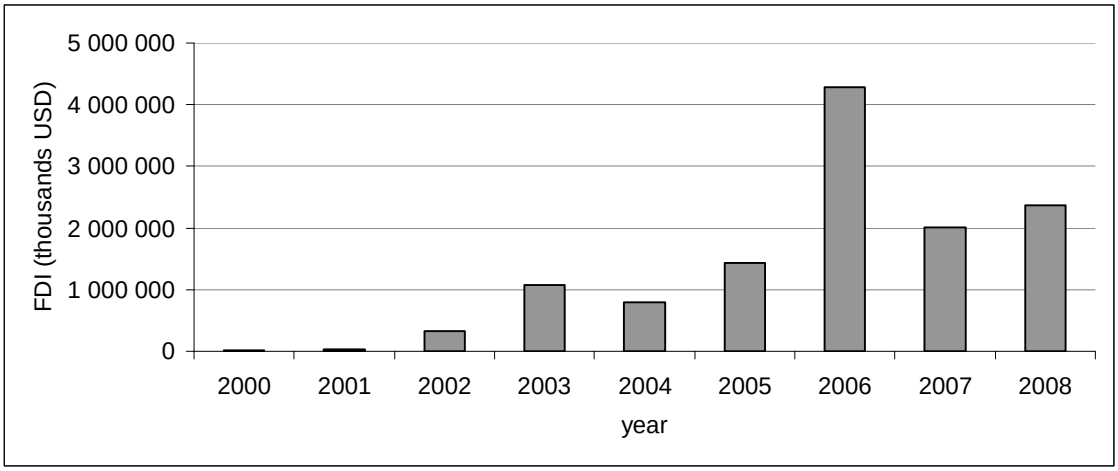
Graph 3: Unemployment rate (%) in Serbia 2000 - 2007



Source: Opštine u Srbiji 2001-2005, Municipalities in Serbia, 2006-2008, own calculations

Another important development indicator is unemployment rate, as presented in Graph 3. High unemployment rate was an inherited condition from Milošević's regime and even though the official number closed on 30 %, there was still a strong amount of hidden unemployment in unproductive companies, that had to be restructuralized. This number could have been around 20 % and caused immense transformation problems, as any harsh steps towards restructuralization and privatization of the most unproductive and costly giants would have extensive social impact. The unemployment rate reached its top of 34,3 % in 2003, then it started to lower towards 28 %. This number is still high, but it needs to be noted, that the restructuralization of most of state owned enterprises is nearing its end and over this hard period, unemployment rate was kept at least at similar level to that in the beginning, which is quite an achievement, considering the extensiveness and obsoleteness of the state owned sector in 2001. The decrease in last years could finally be a positive signal, but the world economy crisis would probably inverse the trend for a few years.

Graph 4: Foreign direct investment (‘000 USD) in Serbia 2000 - 2008



Source: National Bank of Serbia

Another important indicator of economic development in transition countries is the amount of foreign direct investments (FDI), shown in Graph 4. In Serbia, this characteristic proved to be the most sensitive to political development and general atmosphere in the country. The first years of transformation were marked by a steep rise of FDI, mainly due to its practical non-existence before 2001. The total value of FDI exceeded one billion USD in 2003, but decreased in 2004 reacting on the murder of Zoran Đinđić, which reduced the trust in Serbian economy and politics. In the period from 2004 until 2006, the amount of FDI increased steadily again, because the government was stable, no pre-term elections took place and seeking of solutions of serious problems was postponed on later terms. In 2006, the total of foreign direct investments crossed four billion USD. In 2007, the problem of Kosovo status resulted in unclear perspectives of Serbian future political and geopolitical orientation. Therefore, the trust of investors decreased and FDI value fell to two billion USD. The following year was marked by government crisis, two elections with very close pro-European results and for Serbia unfavorable turn of events in Kosovo. Although there was some rise in FDI, the value of 2006 seems to be out of reach in longer perspective.

The development of Serbian economy during transition could be considered positive, with regards to the depth of crisis it has been through. It is important to acknowledge the complicated position of pro-reform government, that would practically put further democratic development of the country in danger, if proceeding to harshly. On the other hand, the last elections (see Chapter 3.1.2) showed, that nationalistic rhetoric itself is not enough, that most people are already tired by economic backwardness of their country and perceive EU integration and

market-oriented economy as the only chances to escape the situation they fell into. The potentials are weakened by 10 years of isolation, but once moderately developed country should have the ability to reach its former position.

3.3 Serbian progress in EU integration

After violent dissolution of Yugoslavia, it was clear that all of its countries, except for Slovenia, will have the door to European Union closed for a long time. Nevertheless, it was clear that the EU must find a way to stabilize the region that, in time, became its direct neighbour. First step towards development of stabilization process was Regional Approach - in 1997 the European Council established political and economic conditionality for development of bilateral relations (European Commision - Enlargement). Then, in 1999 EU proposed Stabilization and Association Process (SAP) for the countries of Western Balkans, region at the time consisting of Albania, Bosnia and Herzegovina, Croatia, Macedonia and Yugoslavia - today's Serbia, Montenegro, and UNMIK Kosovo. In the following year EU agreed that countries included in SAP will be considered potential candidates.

Serbian relationship with the EU started to improve after the revolution October 2000. In November 2000 an agreement about development assistence was adopted and Serbia started to benefit from Autonomous Trade Preferences with the EU (European Commision 2008). Under newly elected Prime Minister Zoran Đinđić, Serbia was able to start frequent dialogue with EU through Joint Task Force, effective from 2001 and in 2003 reformed to become Enhanced Permanent Dialogue (CEU ENS 2008). There was a major change in the perception of the EU, as it „was seen not only as a strategic foreign policy partner but also as an instrument for the promotion of necessary internal reforms" (CEU ENS 2008, p. 287). Also in 2003, the Thessalonica Summit of the EU took place, ensuring the Western Balkans countries about their European future.

One year after opening the SAP by European Council in October 2004, the negotiations on SAA with Serbia and Montenegro started (European Commision - Enlargement). The process was freezed in June 2006 due to lack of cooperation with the International Criminal Tribunal for Former Yugoslavia (ICTY). After Serbia stated clear commitment on cooperation with ICTY, negotiations on SAA where reopened in June 2007.

SAA was signed in April 2008, shortly before parliamentary elections that eventually turned out victorious for pro-European parties. In July 2008 one of the

two most important war crime indictees, which were still not in Hague, Radovan Karadžić, was captured in Serbia. Although this shows some commitment from Serbian government to ICTY, some countries, mainly Netherlands, still condition ratification of SAA by capturing of the second important war crime indictee, Ratko Mladić. That is why the entering of SAA in force could take quite long time. Also, even though EU Commisioner on Enlargement Olli Rehn stated, that Serbia could get candidate status in 2009 and some countries like France, Greece or the Czech Republic seemed to be backing him, there are some forces that want to oppose it as long as Serbia does not recognize independent Kosovo, which is an even more delicate matter than handing indictees over to ICTY (Ahtisaari in Ministry for Kosovo and Metohija 2008). Another obstructions on Serbian way to candidate status could also be the increased focus on the economic crisis and the problem of Lisbon treaty, as some members of the EU state, that there will be no talks about enlargement unless it is fully ratified.

Besides the criteria of cooperation with the ICTY and problematics of Kosovo, there is one more special condition for Western Balkan countries to fulfil if they desire to associate with European Union. Serbia and the others have to participate in regional cooperation - Stability Pact, Central European Free Trade Area (CEFTA) and some others. According to European Commision (2008) Progress Report, this should not be a constraint to association process of Serbia. The relations with neighbouring countries are reported to be good, although affected in a negative way by a series of Kosovo recognitions. The most important part of negotiations with the EU should be the Copenhagen Criteria, but Serbia's progress of fulfilling them is constantly in the shadow of ICTY cooperation and Kosovo issues. While these factors were constraining negotiations on SAA or EU candidateship, political and economic transformation was steadily going on in Serbia. Legislative changes were done usually in accord with „acquis communitaire", most improvements were probably achieved in the field of free market economy.

So far, the European policy towards Serbia was a hard-line one, but in the near future there might be a little more sensitive approach needed. As stated in CEU ENS (2008, p. 349) study: „One could argue that the EU should have used at least as many carrots as sticks in its policy toward Serbia." So far the ICTY trials could hardly bring any satisfaction to Serbian public, as they were in a big majority of cases dealing only with Serbian war crimes and if some other nationalities were brought before ICTY, they were not often found guilty. „Instead of facilitating the political transition and the process of rebuilding the rule of law through dealing with

the past, ICTY trials have been utilized by nationalist forces for the purpose of further victimization and radicalisation of Serbian politics" (CEU ENS 2008, p. 352).

3.4 Regional policy in Serbia

During the 20th century, substantional regional diferences in terms of economy, demography or social aspect always existed in Yugoslavia and their lowering presented a big challenge for the government. The variability was especialy notable in federal republic Serbia, where there was a well developed autonomous area of Vojvodina, capital city of Belgrade and on the other side the most underdeveloped territory of Kosovo and Metohija (Ocić 1998a). Regional policy started to develop in the period after Second World War, but its practice was specificaly shaped by Yugoslavian socialist regime. The dominating method of activating development was extensive industrialization, preferring sectoral criteria over those of regional character. This led to misplacement of industry in areas where it was not viable and where it needed further investment just to survive. Also, regional policy was practiced on level of federal republics and autonomous areas, but there was no more precise definition of problem areas, which led to long neglection of less developed territories within units with higher level of development. This model of regional policy did not bring any results and therefore contributed to the dissolution of Yugoslavia as more developed regions did not want to invest further capital with no visible results, while those less developed stated that it is the lack of investment that is holding them backwards and that the funding needs to be raised (Ocić, 1998b).

In the beginning of 1990's, along with major changes in functional organization in Serbia, new institutional framework for regional development was introduced. In 1992, Development Fund of the Republic of Serbia (Fond za razvoj Republike Srbije, further called Development Fund) got the key role in regional development. „Activities of the Development Fund of the Republic of Serbia related to regional development include: financing foundation, initiation of business and development of small and medium-sized enterprises and independent shops in underdeveloped and devastated areas and in nationally mixed regions, especially in the South of Serbia" (Jakopin 2007b, p. 106). It is important to note, that state development aid in Serbia amounted to 3,1 % of GDP in 2003, decreasing to 1,5 % in 2005. These numbers are very high, considering that the EU average is around 0,5 % and in most transformation countries, this value is even lower (Jakopin 2007b). Nevertheless, regional policy in Serbia is facing many obstacles making it

less effective than possible. Individual aspects of this problematic will be evaluated later in this chapter.

Table 3: Approved credits from Development Fund 1994 - 2006

	1994-2006			2002-2006		
District	Total (EUR)	Share (%)	per capita (Serbia = 100)	Total (mio. din.)	Share (%)	per capita (Serbia = 100)
Grad Beograd	71 734 288	11,7	56,1	7222,2	14,4	68,7
Mačvanski	36 696 125	6,0	324,2	3268,0	6,5	148,6
Kolubarski	20 944 782	3,4	81,7	1582,1	3,2	123,4
Podunavski	11 349 383	1,9	61,8	809,6	1,6	57,7
Braničevski	15 251 099	2,5	64,4	888,7	1,8	66,4
Šumadijski	36 570 236	6,0	172,3	3295,3	6,6	165,3
Pomoravski	19 475 081	3,2	62,5	1352,0	2,7	89,1
Borski okrug	14 296 165	2,3	170,7	1024,9	2,0	104,8
Zaječarski	13 208 920	2,2	152,1	900,1	1,8	98,1
Zlatiborski	43 851 752	7,2	222,2	4002,7	8,0	191,4
Moravički	28 069 529	4,6	151,5	2281,5	4,6	152,1
Raški	52 035 833	8,5	318,9	3685,5	7,4	189,7
Rasinski	27 463 565	4,5	160,9	2495,1	5,0	144,1
Nišavski	39 399 918	6,4	289,7	2426,1	4,8	95,2
Toplički	20 696 781	3,4	80,7	1344,7	2,7	197,4
Pirotski	10 098 350	1,7	57,7	570,7	1,1	81,0
Jablanički	23 512 563	3,8	49,0	1732,7	3,5	107,8
Pčinjski	20 722 885	3,4	76,1	1415,6	2,8	93,2
Severno-bački	10 843 844	1,8	40,2	1054,1	2,1	78,9
Srednje-banatski	6 405 535	1,0	40,7	733,9	1,5	52,8
Severno-banatski	9 354 980	1,5	54,5	938,3	1,9	84,8
Južno-banatski	18 995 213	3,1	115,8	1650,7	3,3	78,8
Zapadno-bački	10 120 376	1,7	41,5	929,1	1,9	65,1
Južno-bački	33 679 447	5,5	181,0	3265,4	6,5	82,4
Sremski	16 968 548	2,8	141,1	1307,8	2,6	58,3
Total	611 745 196	100,0	100,0	50032,3	100,0	100,0

Note: Data for 2006 refer to the period until October 18th 2006.

Source: Jakopin (2007b)

Table 3 shows funds allocated to throught Development Fund to individual districts. It suggests that the distribution of support is not clearly favorable for underdeveloped areas. On the contrary, the biggest benefitor in total is Belgrade, followed by some industrial regions, like Šumadija or Nišava. From less developed regions, only Raška steps out, receiving 8,5 % of the funds in the period between 1994 and 2006. Measured per capita, it got second highest value behind Mačva with 264 EUR per capita. Other less developed regions reached much lower values, for example Jablanica and Pirot less than 50 EUR per capita. Between 2002 and 2006, the alocation of funds did not change significantly. The position of underdeveloped districts from south got a little better, while the most developed regions from Vojvodina received less funds. Nevertheless, the distribution still does

not favor underdeveloped areas clearly, which is caused by the general character of Development Fund and by better resources for preparation of quality projects in the developed regions.

Besides Development Fund, little attention was given to regional development in the first half of 1990's, because the Yugoslavian state was going through painfull dissolution and, under international sanction, the main aim of economic activity was survival. New interest in regional development sprung in 1996, after the signing of Dayton Agreement. The result was Prostorni plan Republike Srbije (Spatial Plan of the Republic of Serbia), that defined the patterns of land use and development strategies. The planning period was 15 years and since no new document on spatial planning at the republic level was adopted so far, it is still valid. Nevertheless, Prostorni plan Republike Srbije is obsolete now. It was created under different institutional and social conditions, so it would be very usefull to prepare a new spatial plan taking into account the actual situation. Also, in 1995 was adopted the last law directly defining and regulating the policy towards the least developed areas. It expired in 2005, so there is a legislative vacuum in this area now.

After 1998, with the Kosovo crisis and its consequences for Serbia, regional development again ceased to be an actual topic. Unfortunately, even after the regime change growing regional differences did not get enough attention. During the transition, lots of institutions that deal with the problem of regional development emerged, like Guarantee Fund, National Employment Agency or Agency for Development of SMEs and Enterpreneurship. From the middle of 2006, also Serbian Investment and Export Promotion Agency (SIEPA) provides incentives for investment into regions with high unemployment rate (Jakopin 2007b). But the legislative regulation and coordination is unsatisfactory. At the republic level, Council for Regional Development and Regional Capital Investitions (Savet za regionalni razvoj i regionalne kapitalne investicije) is appointed as the main coordination body, but there are no similar institutions at the regional level. A possible direction was showed by the activity of European Agency for Reconstruction (EAR), that promoted creation of offices aimed at coordination of development activities in Zrenjanin, Kragujevac and Leskovac since 2003. Although their results are good, they still don't have support in law and serve just as an example of possible future system of regional agencies (Jakopin 2007b).

As the first document trying to cover systematicaly all the aspects of regional development and policy, „Strategy of Regional Development of the

Republic of Serbia 2007 - 2012" (Strategija regionalnog rozvoja Republike Srbije za period od 2007. do 2012. godine, further called Strategy of Regional Development) was adopted. It includes an extensive analysis of individual fields, objectives, goals, policies and activities aimed at solving the problems, SWOT analysis and action plan. Nevertheless, its success depends on the legislative progress in the field of regional development and decentralization area.

In the Strategy of Regional Development (Jakopin 2007b), following obstacles to regional policy are defined as the most important:

1. Development policy in Serbia was so far based on sectoral principle. Action of individual ministeries and other institutions were uncoordinated, concentrated on separate aspects of development. Therefore it was not possible to reach synergic effects.

2. Law vacuum. There is no law regulating the problematics of regional development.

3. Absence of institutions of regional development (regional development agencies) and no legislative regulation of strategic planning.

4. Inadequate monitoring and untransparent regional development funds and public subsidies.

In February 2009, Draft Law on Regional Development was finished by Ministry of Economy and Regional Development. It presents solid system of institutions of regional development with respect to European standards of NUTS units. Nevertheless, there are some flaws in the draft identified by Standing Conference of Towns and Municipalities (Stalna konferencija gradova i opština - SKGO). The major problems of the concept are, that it does not acknowledge the previously formed regional development agencies, that some towns and municipalities or their associations worked hard to establish in the law vacuum of last years. Some control mechanisms are according to SKGO inadequate and some terms and formulations are confusing (Stalna konferencija gradova i opština 2009).

3.5 Concepts of regionalization and decentralization in Serbia

In the Socialist Republic of Serbia, with the exception of autonomous areas, the last concept of regionalization was grouping of municipalities in inter-municipal

regional communities in 1975. This way, besides Beograd with special status, following regions were formed: Zaječar, Podrinjsko-Kolubarski, Južnomoravski, Podunavski, Kraljevo, Titovo Užice, Niš and Šumadija i Pomoravlje. Strategy of their development was creation of a complete economic structure in every region, rather than diversification based on regional comparative advantages (Jakopin 2007b).

This system was reformed in 1991 with the Law on Territorial Organization and Self-government. Newly emerging regional unit was okrug - district. Nevertheless, districts did not have self-government character, they served as administrative units of central government (Ocokoljić 1997). As for the way how they have been formed, they follow mainly gravitation areas of their centres, therefore representing roughly the functional division of Serbia. This regionalization stayed in force until now, although many propositions for decentralization and altered division were made.

In Strategy of Regional Development (Jakopin 2007b), the problem of future decentralization and regionalization according to European NUTS classification is widely discussed and three possible versions are offered for consideration. The third, recommended, version proposes that districts would stay as NUTS 3 regions and at the same time they would be the the new regional self-government units. As NUTS 2, following regions would be formed: Belgrade (the same as NUTS 3), Eastern Vojvodina (Banat), Western Vojvodina (Bačka and Srem), Eastern, Southern, Western and Central Region.

Earlier, in Prostorni plan Republike Srbije (Stojković 1996), a functional regionalization of Serbia that could be used as another concept of decentralization differing a little from the system of administrative districts was proposed. The result were 29 regional functional systems, 19 of them staying the same as districts (Beograd, Zaječar, Bor, Vranje, Leskovac, Kruševac, Čačak, Niš, Pirot, Prokuplje, Valjevo, Požarevac, Smederevo, Kragujevac, Jagodina and Sombor), 4 were divided (Mačva into Loznica and Šabac region, Raška into Kraljevo and Novi Pazar region, Zlatibor in Užice and Prijepolje region, Južni Banat in Vršac and Pančevo region) and 5 were changed otherwise (Subotica includes Kanjiža, Senta and Ada municipalities also, Nova Crkva is added to Kikinda system, Novi Sad region includes also the municipalities of Inđija, Irig and Stara Pazova). This regionalization is interesting because it corrects the functional defficiencies of districts, but some of the resulting regions would probably have too low population to work effectively. It also proposes a system of macro-regional centres. Those would be Beograd, Novi Sad, Kragujevac, Niš and Užice.

Derić and Perišić (1995) deem the macro-regional character of Užice questionable and consider some 20 regions with reasonable size and enclosedness of development to be possible to define. Except for those concepts presented already, there is a lot of other literature at least partially focused on regionalization and decentralization (Devetaković 1994, Derić, Perišić 1996, Stepić 2002, Vacić, Mijatović, Simić, Radović 2003, Rosić 2004, Radovanović 2007, Devetaković, Gavrilović, Rikalović 2008), but there is a lack of real analyses of functional links and gravitation relations between centres and their regions. The criteria stressed in most sources are mainly of political, administrative, legislative and economic character. Neveretheless, decentralization should be a priority for the government, as only with it, it would be possible to promote a fully institutionalized and effective regional policy.

According to draft Law on Regional Development, it seems that the solution with NUTS II Vojvodina region as single unit, Central Serbia divided into Beogradski region, Zapadni (Western) region, Istočni (Eastern) region, Centralni (Central) region and Južni (Southern) region NUTS II units and Kosovo i Metohija also formally defined as a NUTS II region will be implemented. Division approximating this one will be used in analyses of macroregional economic differentiation. NUTS III regions are to be defined by ministry responsible for regional development agenda shortly after adoption of the law (Ministarstvo ekonomije i regionalnog razvoja 2009). The divisions used in this work are 159 municipalities (114 in Central Serbia - Lapovo is united with Batočina and 45 in Vojvodina), 25 districts (18 in Central Serbia and 7 in Vojvodina) and 7 macroregions (5 in Central Serbia and 2 in Vojvodina). For details see Annex 1 and Annex 7.

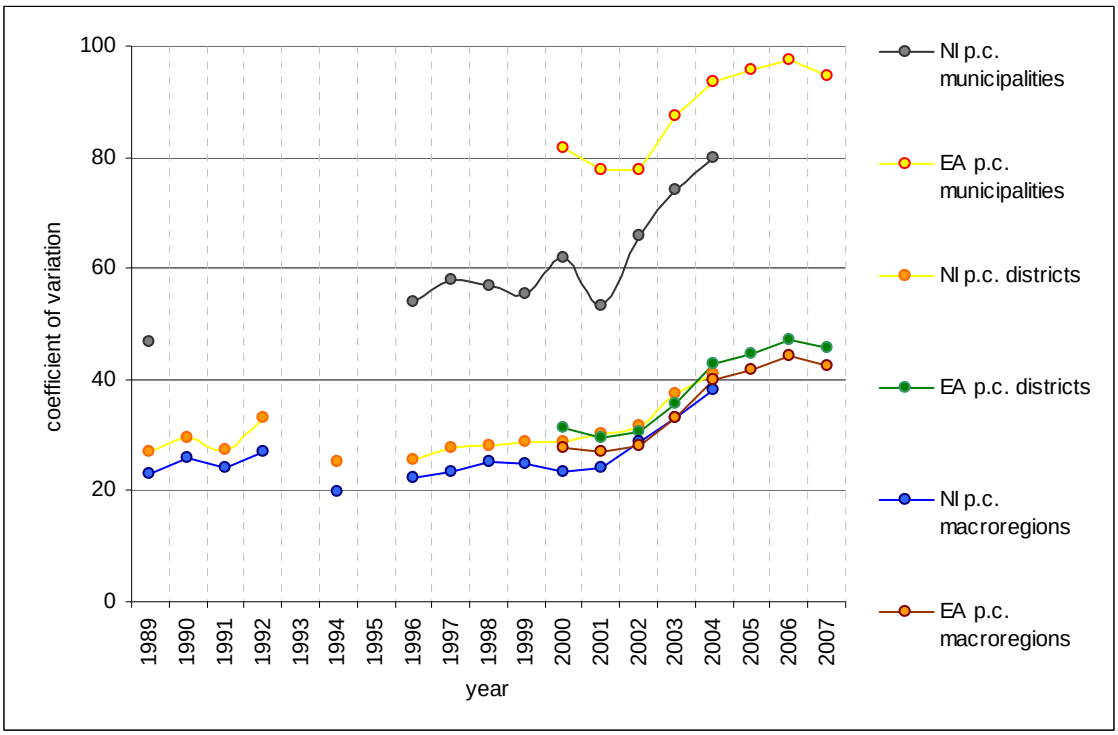
4 Basic characteristics of regional development in Serbia

In this chapter, general trends of regional development in Serbia are studied. The main point is to find some basic trends and tendencies and compare them with development in other post-communist countries to determine, how specific the regional economic tendencies in Serbia were. Then, individual dimensions of development are examined using some complementary characteristics, looking for the causes of variability and abnormalities in basic regional pattern.

4.1 General trends of regional development

Behind the curtain of turbulent political and economic events in Serbia during the last 20 years, the development of regional disparities was left somewhat unnoticed until the recent times. The aim of this section is the evaluation of basic tendencies in regional development in Serbia based on the key economic aggregates of this work, NI and EA. As measures of regional variability, coefficient of variation, Gini coefficient and range are used.

Graph 5: Regional variability of NI p.c. and EA p.c. in Serbia 1989 - 2007

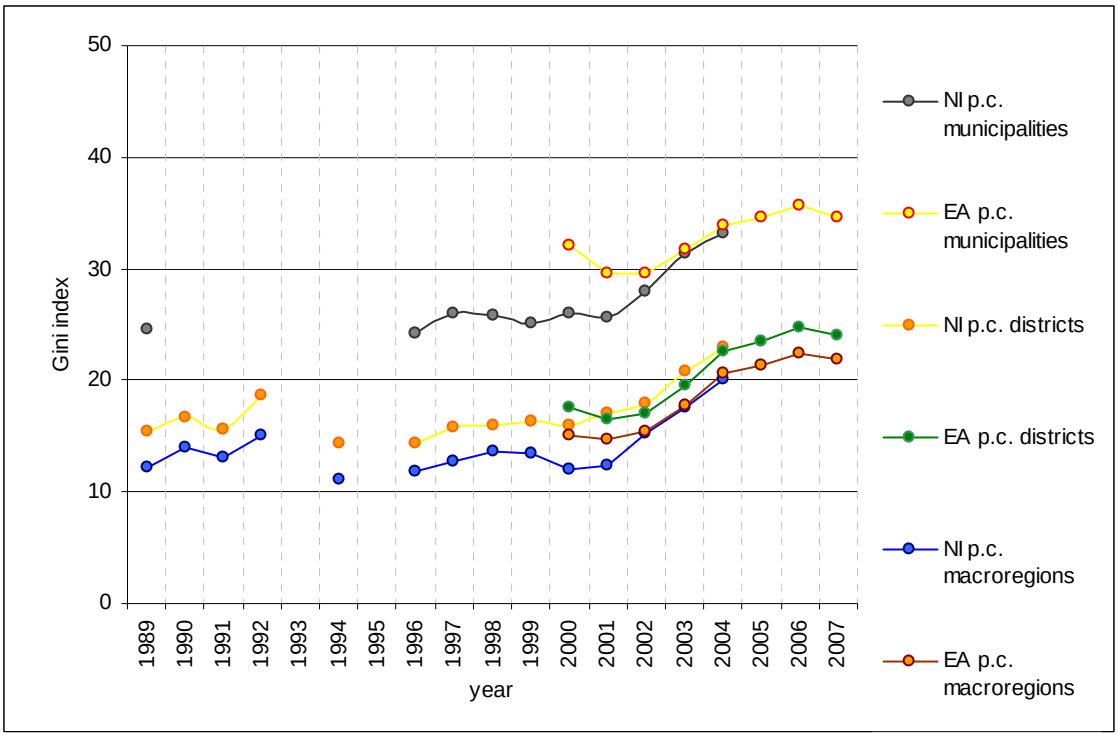


Source: Opštine u SR Srbije 1990, Opštine u Srbiji 1997 - 2008, Statistical Yearbook of Yugoslavia 1992 - 1996, own calculations

Graph 5 shows the evolution of regional variability in Serbia between 1989 and 2007 on three levels of spatial division (see Annex 1 and Annex 7). The featured indicators are NI and EA, overlapping in five years. Thereby, one of the points of Graph 5 is to show reliability of EA as an alternative characteristic to NI. The 1989 to 2001 period, covered only by NI shows sharp decline of regional variability during the first serious crisis between 1992 and 1994. Nevertheless, from this bottom, the coefficient of variation rose slowly but steadily and was not seriously influenced even by the NATO bombardment in 1999. It is also clearly visible, that the lower hierarchical unit is the base of measurement, the higher is the level of spatial inequality of economic characteristic.

Turnover to strong divergence trend can be observed in the year 2001 by NI p. c. variability and with one year delay by EA p. c. This rise of coefficient of variation lasted until 2007, when it slightly decreased on all three levels. While regional divergence of the earlier years of the decade can be easily assigned to transformational straightening of inapropriate structure of economy, the lowering of regional disparities in 2007 is harder to explain. Maybe the regional variability finaly reached its peak, maybe it is just a short term distortion of the divergence trend.

Graph 6: Regional concentration of NI p.c. and EA p.c. in Serbia 1989 - 2007



Source: Opštine u SR Srbije 1990, Opštine u Srbiji 1997 - 2008, Statistical Yearbook of Yugoslavia 1992 - 1996, own calculations

In case of Gini index, as there is always a discrete number of units in this study, it is mathematicaly inevitable that lower hierarchical levels have the same or higher values. The trends followed by Gini index over the observed period correspond very closely with those of coeffiecient of variation, thereby confirming the turnovers of regional economic divergence and convergence in the 1990's and strong divergence in the beginning of 21st century. The only visible differences in Graph 6, compared to Graph 5, is the softened fluctuation of Gini index of NI p.c. on municipality level in 2001 and more notable decrease of regional variability after the war in Kosovo.

Table 4: Range of NI p.c. and EA p.c. Serbian regions in 1989 and 2000 - 2007

	1989	2000	2001	2002	2003	2004	2005	2006	2007
NI municipalities	322	505	421	539	594	649	-	-	-
- without Beograd	190	285	298	287	291	259	-	-	-
EA municipalities	-	714	749	789	849	857	873	881	904
- without Beograd	-	209	173	181	182	181	193	212	186
NI districts	79	96	110	89	121	118	-	-	-
EA districts	-	97	89	89	108	131	133	138	136
NI macroregions	53	54	62	70	83	98	-	-	-
EA macroregions	-	75	71	75	90	107	112	119	116

Source: Opštine u SR Srbije 1990, Opštine u Srbiji 2002 - 2008, own calculations

In the case of range, Table 4 is showing only the initial value in 1989 and the development in transition period. During the 1990's did not evolve any notable trend, the measures were fluctuating with an end on a value higher than the initial. At the beginning of 21st century, the values of range on district and macroregional level started to rise steadily, reaching values well over 100. As in the case of other indicators of regional variability, in 2007 the divergence trend reversed on all levels, except for municipality level including Belgrade, whose central parts still develop much more dynamically than the rest of the country. Of course, the municipal economic development in general confirmed, that the main engine of the divergence was the development of City of Beograd. Without its central units, no trend towards divergence can be spotted at level of municipalities.

4.2 Regional variability in Serbia compared with selected post-communist countries

To stress some specifics of regional development in Serbia, its basic characterics will be compared with other post-communist countries. Table 5 offers some basic indicators of regional variability on which the comparation with Serbia is based. Some of these data are further analyzed graphically, to ease the

interpretation. Nevertheless, it has to be noted, that the figures presented are influenced by number of regions and national methodological specifics. The findings presented are only of an orientation character.

Table 5: Indicators of regional variability of GDP p.c. in selected post-communist countries in selected years

	coefficient of variation			coefficient of variation without capital region			share of capital region (%)		MAX:MIN	
	1998	2001	2004	1998	2001	2004	1998	2004	1998	2004
Czech Republic	28,8	34,6	34,8	5,6	7,1	7,4	21,99	23,52	1,99:1	2,65:1
Slovakia	46,2	47,8	49,9	15,3	15,1	16,2	24,70	25,20	3,46:1	3,78:1
Poland	17,2	22,7	22,2	-	14,2	14,8	19,54	20,50	-	2,20:1
Hungary	28,5	37,5	39,1	-	20,8	22,4	34,60	34,74	2,41:1	3,83:1
Romania	25,0	42,9	36,0	10,0	14,3	16,3	16,53	19,41	2,05:1	2,75:1
Bulgaria	16,4	22,1	28,2	17,8	23,3	2,7	28,24	39,68	1,60:1	1,85:1
Slovenia	15,5	21,1	23,1	8,5	11,7	13,2	32,30	35,93	1,70:1	2,17:1
Serbia	26,3	26,7	39,9	21,9	28,6	28,6	28,54	34,98	2,80:1	3,56:1

Note: regional division used: Czech Republic - 14 NUTS III, Slovakia - 8 NUTS III, Poland - 16 NUTS II, Hungary - 20 NUTS III, Romania - 8 NUTS II, Bulgaria - 6 NUTS II, Slovenia 12 NUTS III, Serbia - 25 districts

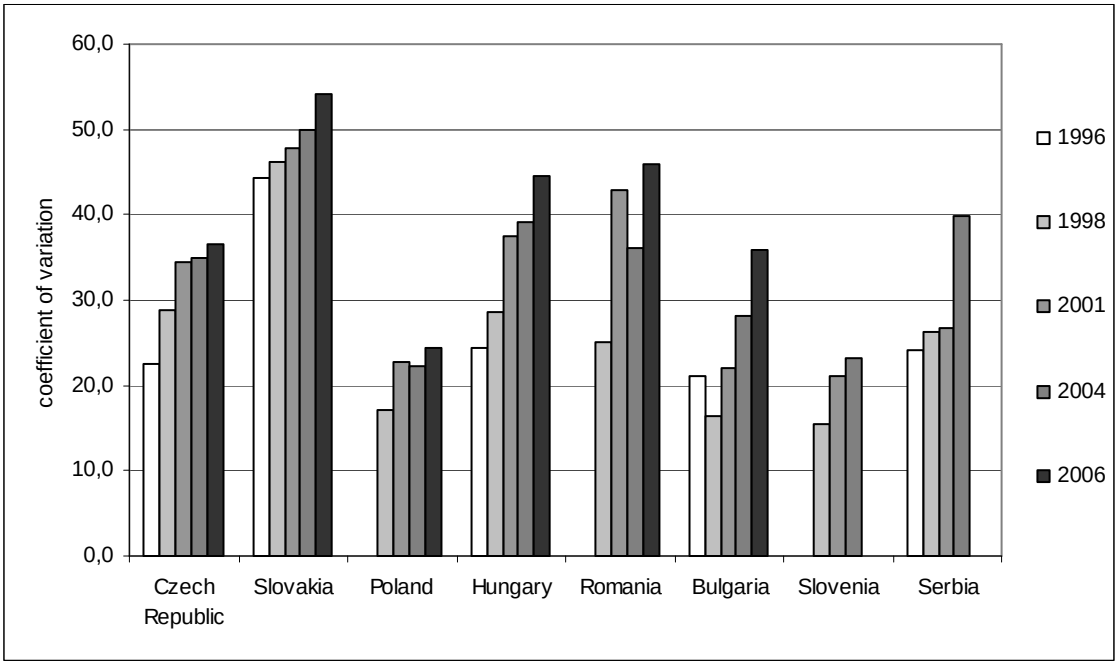
Note: Slovenia - data for 1997, 2002 and 2005

Note: regional GDP p.c. (NI p.c. in Serbia) is used as the underlying indicator

Source: websites of national stastical offices, publications of RZS (see References, Statistical sources), Tomeš 2001, own calculations

Basic insight into Table 5 points to a general rise of regional variability over time. It is most clear in the ratio between maximal and minimal regional GDP p.c., which did not drop in any of the presented states between 1998 and 2004. The highest difference, 3,83:1, was in Hungary, while Slovakia with 3,78:1 was close to it. In this comparison, Serbia would be the third with 3,56:1. The most dynamic rise of variability was also that in Hungary, where the highest value evolved from 2,41:1 in 1998. The rise in Serbia was also fast, starting at 2,80:1 in 1998, while until 2001 stagnation of the ratio was most likely as the economic and political crisis deepened. It could be expected that the trend continued, as is obvious from other parts of this work (Chapter 4.1). Therefore Serbia is now much more heterogeneous than in 2004, making it one of the most regionally differentiated countries in the post-communist Europe.

Graph 7: Development of regional variability of GDP (NI) p.c. in selected post-communist countries in selected years



Note: regional division used: Czech Republic - 14 NUTS III, Slovakia - 8 NUTS III, Poland - 16 NUTS II, Hungary - 20 NUTS III, Romania - 8 NUTS II, Bulgaria - 6 NUTS II, Slovenia 12 NUTS III, Serbia - 25 districts

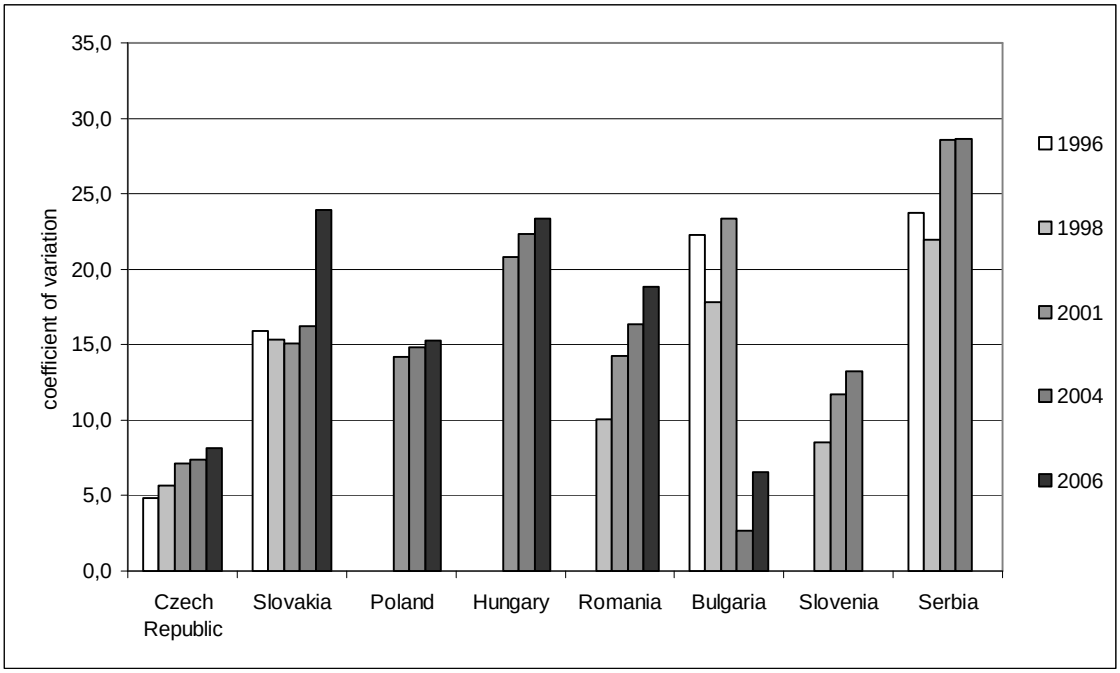
Note: Slovenia - data for 1997, 2002 and 2005

Note: Slovakia and Hungary - data for 1995 instead of 1996

Source: websites of national stastical offices, publications of RZS (see References, Statistical sources), Tomeš 2001, own calculations

Graph 7 shows comparison of coefficients of variation between Serbia and some middle and south-east European post-communist countries from 1996 to 2006 in cases when the data were accessible. In most of the countries the coefficient of variation was rising steadily. Those disobeying this rule were in some periods, usually connected with internal economic crisis, Poland, Romania or Bulgaria. The same can be stated about the stagnation of Serbia's regional economic differentiation until 2001. The longer the delay in transformation was in Serbia, the higher was the rise in its first years, until 2004. If EA p. c. in 2006 would have been included in Graph 7, the value would have joined that of Hungary, Romania or Slovakia at around 50. Therefore it seems, that regional development in Serbia in its basic patterns follows the trends typical for other transformation countries, both in crisis and in transformation. The divergence in Serbia seems to be amplified by the ten years delay of democratic and market-oriented transformation.

Graph 8: Regional variability of GDP (NI) p.c. without capital cities and their regions in selected post-communist countries in selected years



Note: regional division used: Czech Republic - 14 NUTS III, Slovakia - 8 NUTS III, Poland - 16 NUTS II, Hungary - 20 NUTS III, Romania - 8 NUTS II, Bulgaria - 6 NUTS II, Slovenia 12 NUTS III, Serbia - 25 districts

Note: Slovenia - data for 1997, 2002 and 2005

Source: websites of national stastical offices, publications of RZS, (see References, Statistical sources), Tomeš 2001, own calculations

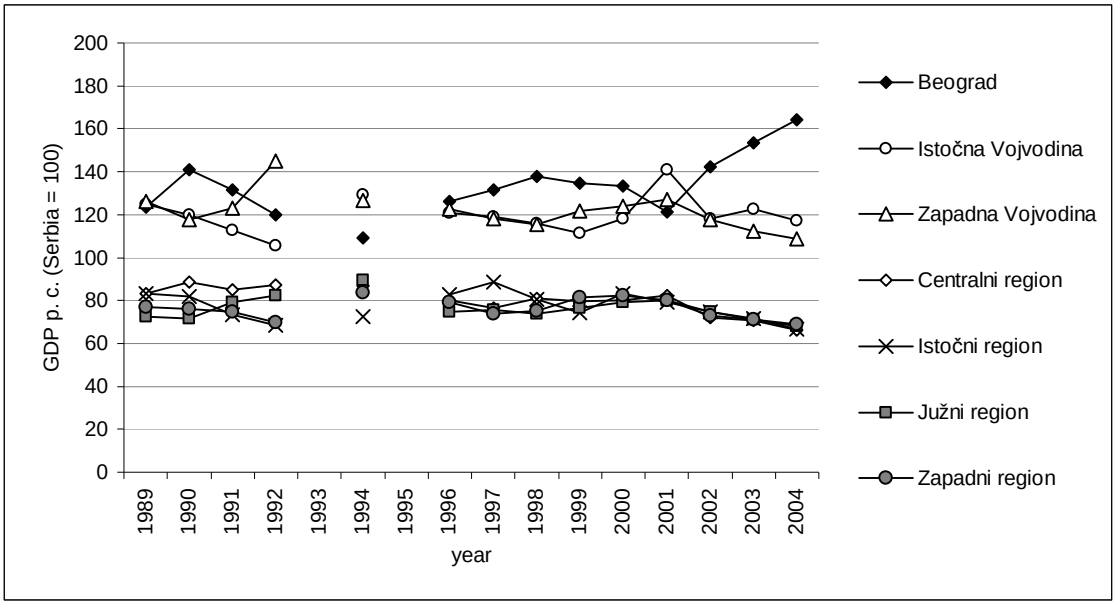
If the regions of capital cities are excluded, the trends of regional economic development are much harder to uncover, as is visible from Graph 8. In most countries some slow divergence pattern is present, although for example in Slovakia all the regional differentiation worth mention happened between 2004 and 2006 or in Bulgaria the exchange of leading regions caused a significant decline in coefficient of variation. The highest levels of heterogenity if capital is excluded can be spotted in Slovakia and Hungary, generally those states that have one side contact with much more developed countries in the west and therefore developed a strong negative gradient towards their eastern parts. Serbia does not have any direct contact with highly developed EU countries, but its regional variability without capital is highest from the selected countries. Considering its backwardness, even contact with less developed part of Hungary might carry positive character. Nevertheless, this is probably not the reason for the highest regional differences in the selected set of countries with capital excluded. This points out rather to the unique character of historical differentiation of Vojvodina and Central Serbia and would be even more notable, if data for Kosovo would be accesible and included into the analysis.

The differences between Graph 7 and Graph 8 in scale and dynamics of the rise of coefficient of variation indicate, that the capital city regions are the most important contributors to regional variability and that they also influence the growth of variability, as their share in the national economy increases, as presented in Table 5. Nevertheless, one important difference between more developed contingent of post-communist countries from central Europe and their counterparts from south-eastern Europe can be noted. In Romania, Bulgaria and Serbia, the share of capital city increased much steeper, indicating that the regional hierarchy was only in a process of generation. If Friedmann's theory would be applied, the lower development level of these countries indicates strong and growing core-periphery dichotomy. In Serbia, this trend continues further, although some signs of turnover can be noted in 2007 EA p. c. data (Chapter 4.1). Therefore it seems, that the transition lag and underdevelopment of Serbia, amplified by the existence of strong historical disparities, influences concentration to capital city as well as the growth of regional variability.

4.3 Regional specifics of economic development in Serbia

The aim of Chapter 4.3 is to analyze economic development of specific spatial units that underlies the general trends of regional differentiation of Serbia. Two hierarchic levels will be examined, those of macroregions and districts, on the basis of EA p.c. and NI p.c, because a comprehensive analysis of the economic development of municipalities would need more space.

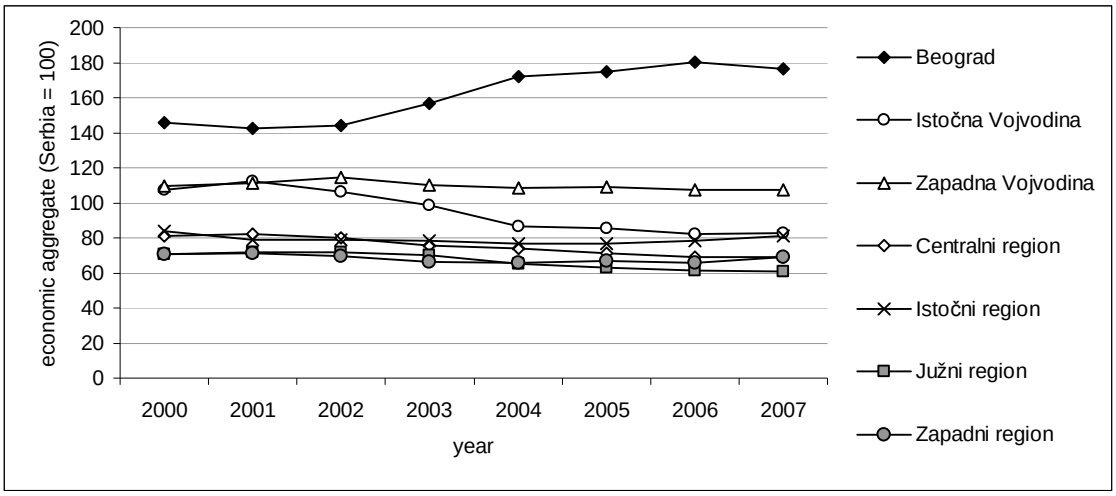
Graph 9: Relative NI p.c. in Serbian macroregions 1989 - 2004



Source: publications of RZS (see References, Statistical sources), own calculations

Graph 9 shows the development of NI per capita compared to the average value in Serbian macroregions (as defined in Annex 7). Until 2001, there has been considerable fluctuation in indivudual values, but the basic grouping is stable. Beograd and the regions of Vojvodina stay far ahead of the four regions of Central Serbia. In the year 2001, first year of economic liberalization, the less developed macroregions of Central Serbia were stacked together at the level of 80 % of average Serbian NI per capita, while Beograd and Zapadna Vojvodina reached a little more than 120 % and Istočna Vojvodina even over 140 %. Since then, the trend causing general divergency was clear and simple. All the four regions of Central Serbia as well as those from Vojvodina were relatively loosing, while the metropolitan area of Beograd was gaining on relative NI p.c. constantly.

Graph 10: Relative EA p.c. in Serbian macroregions 2000 - 2007



Source: publications of RZS (see References, Statistical sources), own calculations

As shown in Graph 10, the figures for economic aggregate per capita in the transformation period are more diverse than those of NI p. c. until 2004. Beograd was leading in 2000 clearly with value a little lower than 150 % of Serbian average, regions of Vojvodina had around 110 %, Istočni region and Centralni region had over 80 % and Zapadni region and Južni region around 70 %. Beograd's position was further confirmed in the following years, reaching the peak in 2006. Although some macroregions, especially Istočna Vojvodina, Centralni region and Južni region, declined significantly at the beginning of 21st century, during the years the decrease of their relative EA p.c. slowed down. In 2007, Beograd reached about 180 % of average value, Zapadna Vojvodina stayed around 110 %, Istočna Vojvodina and Istočni region had over 80 %, Centralni region and Zapadni region a little less than 70 % and on the bottom was Južni region with 60 %.

Table 6: Relative NI p. c. in Serbian districts in selected years

	district	1989	district	2001	district	2004
1	Južna Bačka	138,2	Severni Banat	160,4	**Beograd**	164,3
2	*Bor*	134,7	Zapadna Bačka	154,0	Južni Banat	131,9
3	Zapadna Bačka	132,4	Južna Bačka	139,2	Južna Bačka	125,8
4	Severni Banat	128,8	Severna Bačka	135,6	Zapadna Bačka	120,9
5	Južni Banat	127,2	Južni Banat	133,6	Severni Banat	109,1
6	**Beograd**	123,7	Srednji Banat	129,2	Severna Bačka	108,3
7	Srednji Banat	118,2	**Beograd**	119,4	Srednji Banat	101,6
8	Severna Bačka	114,0	Moravica	114,1	Nišava	95,2
9	Srem	107,9	Srem	108,7	Moravica	87,1
10	Moravica	105,0	Nišava	94,6	**Braničevo**	82,4
11	*Rasina*	104,5	Zaječar	91,5	**Mačva**	72,2
12	Nišava	87,6	*Rasina*	87,2	Srem	70,7
13	Zlatibor	84,6	Pirot	86,1	Pomoravlje	70,7
14	Podunavlje	83,9	Kolubara	83,9	Pirot	70,4
15	Pirot	81,2	**Mačva**	81,7	Kolubara	70,0
16	Kolubara	79,9	Pomoravlje	79,1	Šumadija	67,0
17	Zaječar	78,4	Šumadija	74,6	Podunavlje	65,1
18	Šumadija	70,2	Podunavlje	72,3	Zlatibor	65,0
19	**Braničevo**	69,1	Zlatibor	69,5	*Rasina*	64,7
20	**Mačva**	67,0	Pčinja	65,6	Zaječar	55,1
21	Pomoravlje	64,5	Toplica	65,5	Pčinja	52,4
22	Jablanica	63,4	Jablanica	59,0	*Bor*	52,3
23	Toplica	60,2	**Braničevo**	57,4	Toplica	51,2
24	Pčinja	59,8	*Bor*	53,7	Raška	50,7
25	Raška	58,9	Raška	50,5	Jablanica	46,2

Source: publications of RZS (see References, Statistical sources), own calculations

Table 6 features Serbian districts sorted by regional NI p.c. standardized by national average in 1989, 2001 and 2004. The first year shows regional diferentiation in pre-dissolution period, nevertheless already widely influenced by almost a decade lasting Yugoslav crisis of the 1980's. In the environment of socialist system and the materially based methodology, capital city was not the most productive area. Developed area of Vojvodina, combining its strong agricultural base with diversified industry was on similar level, as well as the district of Bor with its mining and industrial complex. Some other areas with traditionally strong industry, like Šumadija, were already in decline. The least developed areas were mainly the southern districts, such as Jablanica, Toplica, Pčinja and Raška, which lies partly in another traditionally underdeveloped area, called Stari Ras or Sanđak.

After 10 years of isolation, in 2001, districts from Vojvodina stayed as economically stongest, thanks to their important agricultural complex and chemical industry, branches that were vital for survival in the time of sanctions. On the other

hand, districts and their centers that were main subjects of socialist industrialization, which did not pay enough respect to local production prerequisites and factors, deteriorated significantly. In many aspects, also the loss of Yugoslav and foreign markets was crucial. Districts such as Bor, Rasina, Zlatibor and those from southern Serbia lost a lot of their weight compared to the average.

First years of transformation can not be taken as decisive, but some trends and changes until 2004 are clear. Beograd was the main engine of economic recovery, while most of the rest of the country lost a little or more from its relative position in national economy. Most of Vojvodina stayed as the most developed regions in Serbia, just Srem, squeezed between Novi Sad and Beograd, falled in NI p.c. figure down between the districts from Central Serbia. A reasonable position in economic terms - just below Vojvodina - kept the district of Nišava, indicating rising importance of this regional centre in changed institutional framework. High values of NI p. c. were also reached in two districts from northern part of Central Serbia, Mačva and Braničevo as well as industrially diversified Moravica district. On the other hand, the major part of Central Serbia was recovering slower than the country in average, examples of the worst being the southern districts and Bor, suffering a major economic disfunction because of bankrupcy of its mining and metal industry complex.

The most propulsive change during the tracked period was realized by Beograd, which established itself as a single centre of Serbia on the highest hierarchical level. Positive development, viewed from the perspective of impoverished state, could also be seen in districts of Mačva and Braničevo, which underwent successful reconstruction of economy based on the privatisation of enterprises using autochnonous resources, such as food industry and agriculture. Major decline was experienced mainly by Central Serbian regions whose economy was based on extensive industry branches such as machinery and textile. The sharpest slump happened in Bor district which was strongly dependent on external markets.

Table 7: Relative EA p. c. in Serbian districts in selected years

	district	2001	district	2004	district	2007
1	Beograd	142,5	Beograd	172,0	Beograd	176,3
2	Južna Bačka	134,3	Južna Bačka	142,3	Južna Bačka	142,4
3	*Severni Banat*	116,2	Severna Bačka	101,7	Severna Bačka	97,9
4	Južni Banat	115,1	Južni Banat	92,2	Južni Banat	91,0
5	Severna Bačka	108,5	Šumadija	87,2	**Podunavlje**	89,2
6	*Srednji Banat*	104,6	*Severni Banat*	87,1	**Pomoravlje**	87,6
7	*Zapadna Bačka*	96,8	*Zapadna Bačka*	83,7	**Kolubara**	80,5
8	Bor	95,4	Nišava	83,5	**Braničevo**	80,0
9	Šumadija	91,2	**Podunavlje**	82,9	Nišava	79,8
10	Moravica	89,4	Pirot	79,8	*Severni Banat*	78,8
11	Zlatibor	82,6	**Pomoravlje**	78,9	Bor	78,8
12	*Srem*	81,7	*Srednji Banat*	78,4	*Zapadna Bačka*	78,4
13	Rasina	80,8	**Braničevo**	75,0	Šumadija	74,6
14	Nišava	80,3	Bor	74,2	*Srednji Banat*	73,5
15	Pirot	80,0	Raška	72,8	Zlatibor	73,4
16	**Pomoravlje**	78,9	Zlatibor	72,0	Pirot	71,5
17	Zaječar	78,7	**Kolubara**	70,5	Raška	70,8
18	Pčinja	78,1	Moravica	69,9	Moravica	68,8
19	**Kolubara**	76,4	*Srem*	68,8	*Srem*	66,7
20	**Braničevo**	74,9	Zaječar	68,1	Zaječar	62,1
21	**Podunavlje**	72,1	Rasina	63,4	Rasina	59,5
22	Raška	68,5	Pčinja	57,4	Mačva	57,6
23	Jablanica	57,2	Mačva	57,1	Pčinja	52,6
24	Mačva	56,9	Jablanica	46,8	Toplica	43,2
25	Toplica	53,1	Toplica	41,4	Jablanica	40,6

Sources: publications of RZS (see References, Statistical sources), own calculations

Table 6 and Table 7 share two columns, which allow us to compare main differences. Having high EA p. c. and low NI p. c. at one time in one region means low productivity of labour. While EA approximates income of the whole population in a region, NI is a feature that should represent the value of all production in that area. Therefore, major disproportions present occur in regions, where huge state companies were still undergoing restructuralization or waiting for privatization, keeping their employees paid but having barely any sales or production. The biggest discrepancies in this respect can be observed in Bor and Šumadija with two huge companies with highly problematic restructuralization and privatization process.

On the other hand, low EA p. c. and high NI p. c. sugests, that productivity of labor is high, respectively financial costs paid for a unit of production should be lower and profits generated should be higher. This is the case of Mačva, Moravički district or most regions from Vojvodina. In these cases, lower EA p. c. often means

advanced process of regional economic transformation, that can be promising for future development.

As displayed in Table 7, Beograd was the strongest Serbian region according to EA p. c. in during the whole period this aggregate was followed and its weight was growing steadily until 2006, with just a little decrease in 2007. Figures of most Vojvodinian regions were decreasing, in 2007 there were only three of them left ahead of all districts from Central Serbia, which is in the light of traditional Serbian regional pattern rather unusual. On the other hand, as stated earlier, such numbers might indicate more intensive restructuralization, abolition of rigid and obsolete ways of production in big state and socially owned companies.

While most of the Vojvodinian regions were declining, Južna Bačka kept its position highly above average, as Novi Sad keeps hierarchically higher functions and strategic industry. Only slight decrease of relative EA was experienced by Severna Bačka, positioned on Hungarian border, and Južni Banat, with the city of Pančevo, important center of chemical industry that can be considered as a part of wider metropolitan area of Beograd.

Unlike NI p. c. figures, measured in EA p. c. the district of Bor did not decline strongly. It was due to social buffer created by state interventions in bankrupt companies, employees were not dismissed and still received their salaries, although the loss generated in affected enterprises was huge. The 2007 figure more realistic, as at least some components of industry complex of Bor district were sold gradually.

From the middle to lower levels in Serbian economic hierarchy, reaching from 72,1 - 78,9 % of average EA p.c. in 2001, four regions from the north of Central Serbia, Braničevo, Kolubara, Podunavlje and Pomoravlje, progressed to 80,0 - 89,2 % in 2007, which is in light of overall economic divergency a very good achievement. These regions have been among the most succesfull in privatization process and received important foreign investments, that helped them recover faster. Another progressive district in observed period was Nišava, that had only begun to profile itself as a natural centre of the southern part of Serbia. Other region that stayed on its EA p. c. level is Raška, but it is in disproportion with observed development on NI p. c., and therefore the real economic power of the region is probably lower.

The lowest values of EA p. c. were in the southern part of Serbia, in Pčinja, Toplica and Jablanica districts, whose industry generaly dissolved and whose

atractivity for investment is considerably lower than in central parts of the country. Very low figures were also followed in Mačva district, that truly underwent major restructuralization of its leading industrial companies, but NI p. c. would suggest better perspectives for development. Also the receding industrial Rasina and peripheral Zaječar district experienced decline.

4.4 Additional characteristics of regional development in Serbia

Because the process of regional development is a complex one, even if only its economic dimension is taken into account, additional characteristics and their regional dispersion are analyzed to complete the puzzle. First, unemployment rate is examined, as it points to chronically underdeveloped regions and regions with the most structural problems. Comparison with employment rate and economic product is offered to discover the main discrepancies and regional specifics of this features. Further, the regional patterns of wages, structure of employment and demographic characteristics are analysed separately to add to complexity of socio-economic dimensions covered.

4.4.1 Regional variability of unemployment rate

Besides the level of economic production, unemployment rate should always be taken into account, when accessible, as it poses as an important developmental characteristic indicating also the actual economic well-being of population and distribution of generated income in society.

Table 8: Districts with the highest and the lowest unemployment rates (%) in Serbia in selected years

	2001		2004		2007	
1	Jablanica	40,0	Mačva	44,3	Jablanica	48,1
2	Raška	37,7	Jablanica	44,0	Toplica	45,2
3	Mačva	36,8	Srem	43,1	Pčinja	41,5
4	Nišava	36,5	Raška	41,8	Mačva	39,8
5	Toplica	35,7	Toplica	41,4	Raška	39,7
20	Šumadija	26,4	Šumadija	31,2	Pomoravlje	29,0
21	Moravica	25,7	Bor	30,5	Južna Bačka	23,1
22	Zaječar	23,4	Kolubara	28,9	Severna Bačka	21,6
23	Bor	20,4	Južna Bačka	28,5	Kolubara	20,8
24	Beograd	20,3	Beograd	21,1	Braničevo	19,4
25	Braničevo	19,2	Braničevo	19,3	Beograd	15,6
	Republika Srbija	29,1	Republika Srbija	32,1	Republika Srbija	28,2

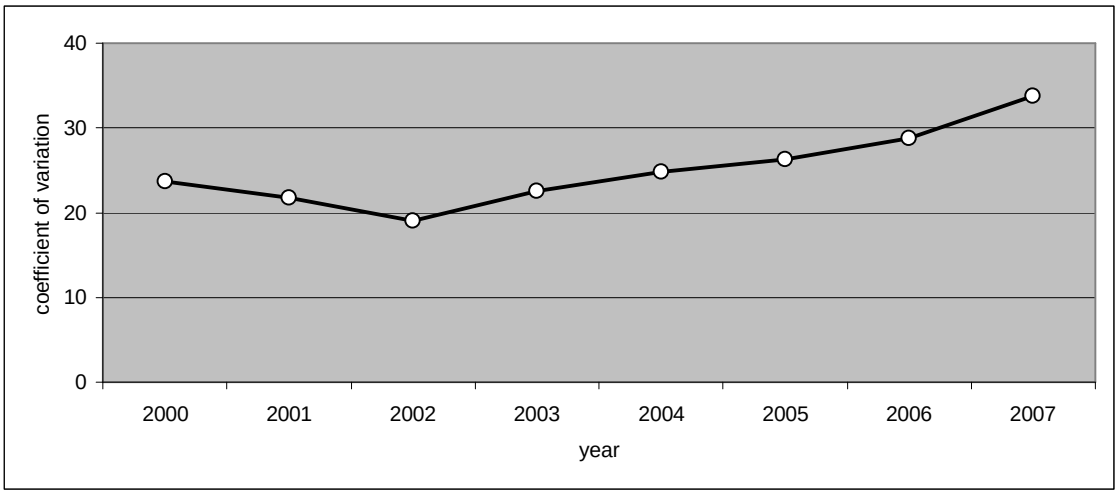
Sources: publications of RZS (see References, Statistical sources), own calculations

As presented in Table 8, extreme values occur in some regions steadily. The district of Jablanica was the one with highest unemployment rate in 2001 and 2007 and the second highest in 2004, presenting it as a critically underdeveloped area. Value of 40 % in 2001 rising to 48,1 % indicates crushed regional economy with no relevant recovery trends. This region, previously known for its textile industry (Rosić 2004), lost most of its productive capacities and the issue of its reconstruction is of a problematic nature. Similar challenges have to be met also in the Raška region, mainly its southern part with the city of Novi Pazar, another centre of the textile industry in the past. Other district with critically high rate of unemployment is Mačva. It is one of those whose industry was very negatively influenced by transition, mainly in the city of Loznica (Grcić, Ratkaj 2006). This region was the one with highest unemployment rate in 2004 - 44,3 %, but according to values from 2007, the trend might be reversed. Another district which suffered major industrial decline and as a consequence high unemployment rate of 36,5 % in 2001 was Nišava, but its role of a center of southern Serbia led to relatively positive development in the tertiary sector resulting in the unemployment rate value of 34,6 % in the 2007. Although Nišava managed to avoid further deterioration of the unemployment rate, other districts from southern Serbia experienced very negative development. Besides already mentioned Jablanica, the unemployment rate in Toplica and Pčinja districts was rising steadily even when the rest of Serbia reported different trend, in 2007 reaching 45,2 % in Toplica and 41,5 % in Pčinja. Therefore, the territory of southern Serbia stands as a main challenge for regional policy in this respect.

The lowest values of unemployment rate were in all three years presented in Table 8 reported in the districts of Braničevo and Beograd. Braničevo is a special case, mostly rural (but with one important industrial center - Požarevac), heavily depopulating district with positive development in economic field and a stable unemployment rate below 20 %, which is an extremely low value in Serbian context. Beograd is outstanding in all economic characteristics, unemployment rate included. In 2007 its value fell to 15,6 %, in 2001 and 2004 it was about 20 %. In the early years of the 21st century, the district of Bor was reporting strongly under average values of unemployment rate, but it was mainly due to the strategic importance of its uncompetitive metalurgic complex, where employees were still formally kept. With ongoing restucturalization and rationalization, the unemployment rate was rising. On the other hand, the first regions able to reach major recovery, nearing unemployment rate of 20 % in 2007, were Kolubara, Severna Bačka and Južna Bačka. The two Vojvodinian districts can profit from favorable position close to Hungary and Croatia, but mainly from their tradition of

well developed industrial complex. Kolubara does not have so advantageous position, but its main center of Valjevo is one of traditionally industrially developed Central Serbian cities and it managed to exploit its potentials quite well, considering the development of its unemployment rate. Similar development could possibly follow in other Central Serbian cities with similar characteristics.

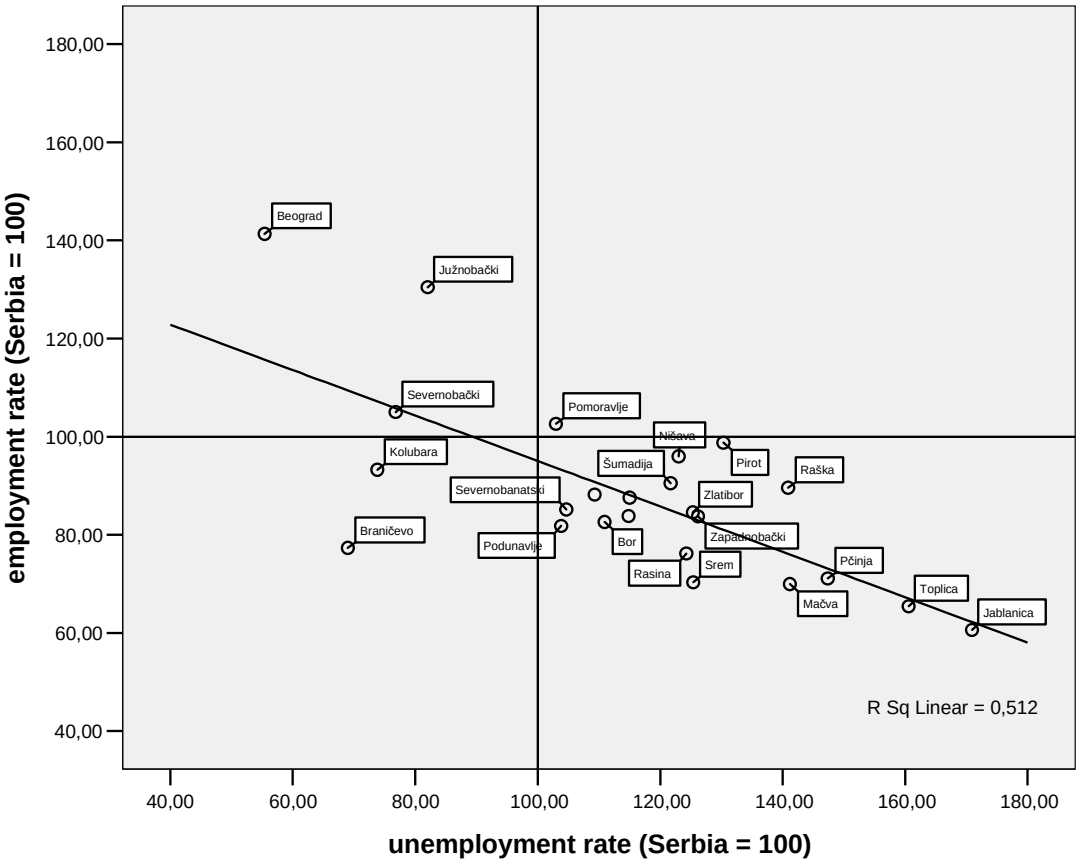
Graph 11: Regional variability of unemployment rate at the level of districts 2000 - 2007



Sources: publications of RZS (see References, Statistical sources), own calculations

Graph 11 shows the development of regional variability of unemployment rate in Serbia using coefficient of variation. In the first three years observed the figure lowered from 23,7 to 19,0, as the rate of unemployment was rising in general, including the most developed regions and regions with artificially kept employment. After 2002, the trend changed, following first signs of recovery in some central regions, which were not followed by the peripheral and structurally afflicted regions. While in 2001 the spread between the minimal and maximal value of regional unemployment rate was 20,8, in 2007 it reached 32,5. The coefficient of variation also rised significantly, reaching 33,7. In discussion with Table 8, from which the location of extremes is evident, it can be stated that the north-south polarization according to unemployment rate rised over the transformation period.

Graph 12: Scatter plot between unemployment rate and employment rate in 2007 on the level of districts

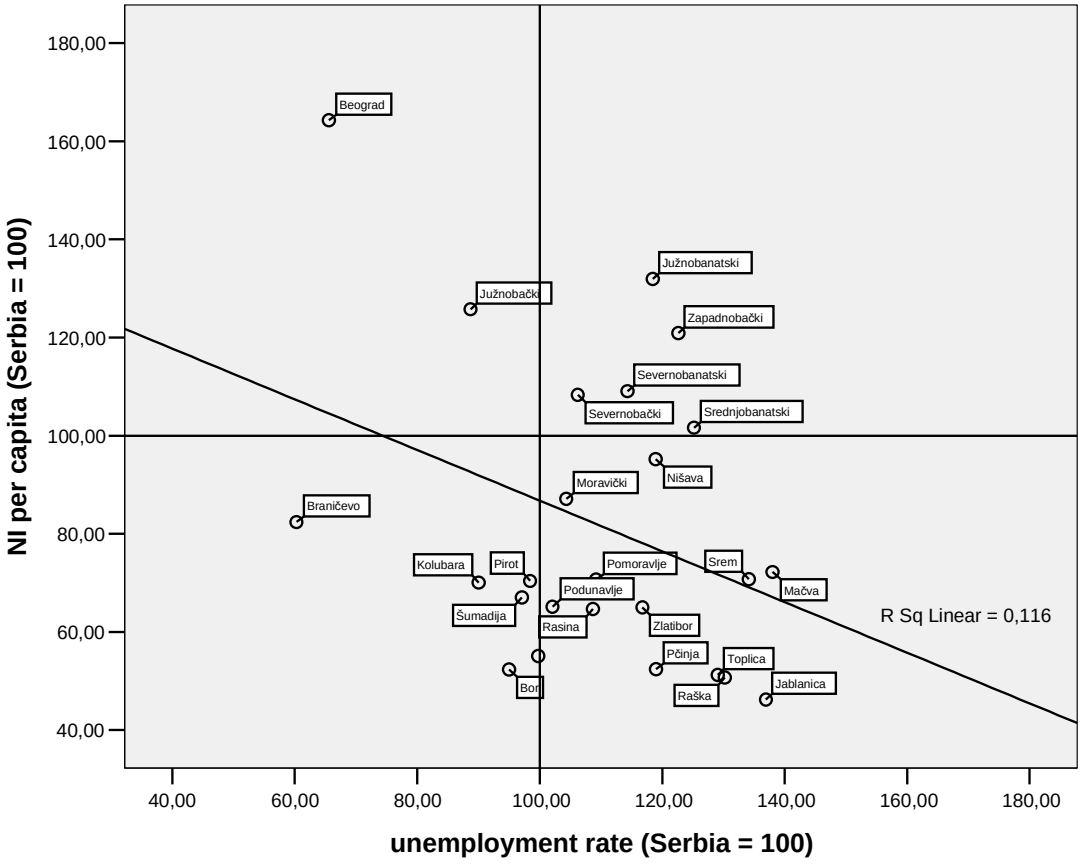


Sources: publications of RZS (see References, Statistical sources), own calculations

Graph 12 offers comparation of unemployment and employment rate, aimed at uncovering various discrepancies in relationship of these two figures. Coefficient of determination (R^2) of linear regression is 0,512. This value suggests that there is a considerable interdependence between the two characteristics. Above the trendline, with higher employment rate than the regression results would expect, lies Beograd and Južna Bačka districts, which absorb labour from neighbouring regions and thereby rise their employees number. Similar assumptions would fit for Šumadija and Nišava, which are, nevertheless, lower in hierarchy and therefore much closer to the trendline. Surprisingly high is the employment rate in Raška and Pirot, most other peripheral regions of south and south-east Serbia are closer to the trendline. Somewhat lower values than expected by linear regression model are in most districts neighbouring major metropolitan areas - Kolubara, Podunavlje, Mačva or Srem near Beograd and Novi Sad, which drain their workforce. For Braničevo this could be also partially valid, but there are more factors causing its low employment rate compared to unemployment rate. It is a traditional emigration region with a high share of population in post-productive age, which could be a

methodological aspect behind this discrepancy as employment rate is calculated as a share of employees in total population.

Graph 13: Scatter plot between unemployment rate and NI p.c. in 2004 on the level of districts



Sources: publications of RZS (see References, Statistical sources), own calculations

Correlation between NI p. c. and unemployment rate in 2004 was low, as can be observed in Graph 13 and as is obvious from R^2 reaching only 0,116, which means that only 11,6 % of regional variability of unemployment rate is explained by NI p. c. in the model. On the other hand, the scatter plot of Graph 13 offers some kind of typology of regions according to above mentioned characteristics. In the sector with NI p. c. above average and unemployment rate under average only the most distinct metropolitan areas occur, Beograd and Južna Bačka. Most of Vojvodinian districts, except for Južna Bačka and Srem are situated in sector with high both NI p. c. and unemployment rate. In the lower right corner, the districts of southern Serbia with high unemployment rate and low NI p. c. lie, while a little above them, also with very high unemployment, but NI p. c. around 75 % percent of average value, occur the regions from both sides of river Sava, Srem and Mačva.

Other distinct region, as pointed out by Graph 13, was Braničevo, with its very low unemployment rate.

4.4.2 Regional variability of wages and salaries

Wages together with number of employees in a districts are the basis of economic aggregate, which is used as substitution of national income in years when this characteristic was not published by RZS. Nevertheless, regional distribution of wages also deserves separate analysis. Although wages on their own do not represent overall regional economic performance, they offer basic idea about the orientation of the regional economy. High wages indicate presence of more progressive activities, intensive ways of production, while low wages are a sign of extensive economic orientation, based rather on cheap than qualified labour. Nevertheless, because of strategy of some foreign investors, even low wages present a development opportunity.

Table 9: Districts with the highest and the lowest average wages and salaries (din.) in selected years

	2001		2004		2007	
1	Južni Banat	7283	Beograd	17802	Beograd	34620
2	Južna Bačka	7153	Južna Bačka	16413	Južna Bačka	30306
3	Beograd	6854	Južni Banat	14995	Podunavlje	30270
4	Severni Banat	6807	Braničevo	14268	Južni Banat	28859
5	Srednji Banat	6622	Severni Banat	14097	Braničevo	28712
20	Raška	4563	Zaječar	10686	Moravica	21647
21	Zaječar	4505	Moravica	9992	Zaječar	20557
22	Pirot	4368	Pčinja	9946	Pčinja	20541
23	Mačva	4290	Pirot	9873	Pirot	20095
24	Toplica	4194	Jablanica	8459	Jablanica	18605
25	Jablanica	4113	Toplica	8138	Toplica	18320
	Republika Srbija	5840	Republika Srbija	14108	Republika Srbija	27759

Source: publications of RZS (see References, Statistical sources), own calculations

In 2001, as showed in Table 9, the southern Vojvodinian regions, Južni Banat and Južna Bačka had the highest average wages and salaries. The reason is their strategic importance in chemical and petrochemical industry in combination their metropolitan character[1]. Beograd and other Banat districts were in 2001 the districts with 3rd to 5th highest wages. In 2004, it was Beograd where the wages rose the most, as in the process of transformation the capital had the best condition to exploit its potentials, being a centre of administrative functions, education and the most progressive tertiary and quarternary activities. The 3rd highest wages

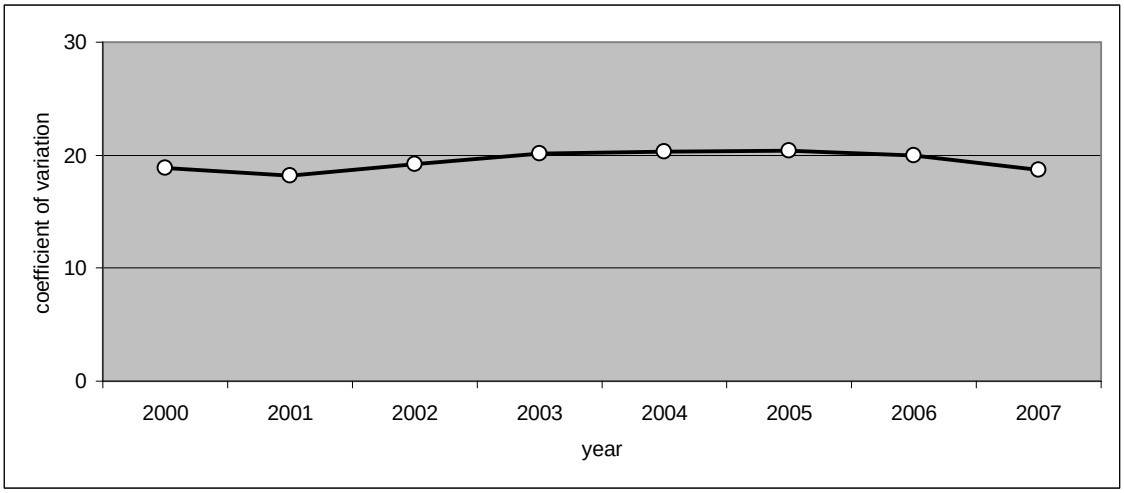
[1] The centre of Južni Banat, Pančevo, directly border on Beograd and strictly taken, it might be considered as a part of Belgrade metropolitan area.

reported the district of Braničevo, which is the home of Serbian most succesfull agro-industry giant and therefore kept its place among the five districts with highest wages also in 2007. Besides stable leading regions, southern Vojvodina and Beograd, the district of Podunavlje reached high average wages in 2007. In its central city of Smederevo, US Steel purchased a company which contributes to the regional economy significantly.

The lowest average wages are typical for the southern and eastern part of Central Serbia. The regions of Jablanica, Toplica and Pčinja in the south show the worst results in most characteristics and can be labeled as chronically underdeveloped. Zaječar and Pirot in the east are also problematic areas, but in some aspects, they do not show such critical underdevelopment as measured by the average wages. The same can be told about Moravički district, which often serves as an example of a succesfull regional economy based on SME's and diversified production. Obviously, this type of enterprises does not offer the highest wages, but many other indicators show more positive results.

Regional differences in average wages are lower than in most other economic indicators. The ratio of the region with the highest and the lowest wages was 1,77:1 in 2001, 2,19:1 in 2004 and 1,89:1 in 2007. The development does not show any clear tendention towards divergence, just a slight elevation of the ratio in 2004 with return to lower ratio three years later.

Graph 14: Regional variability of wages on the level of districts 2000 - 2007



Sources: publications of RZS (see References, Statistical sources), own calculations

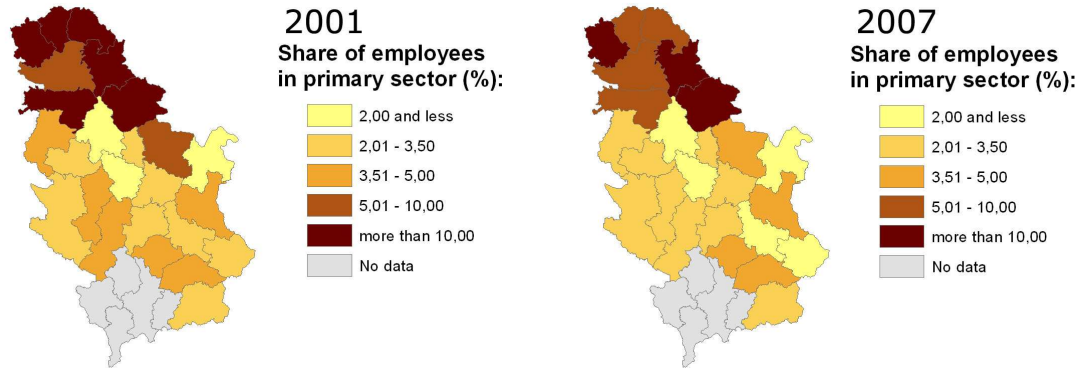
Further evidence for the lower regional variability and unclear trend to convergence or divergence regarding average wages and salaries offers Graph 14, showing the development of coeffient of variation. The value was all the time from

2000 to 2007 around 20 with slight elevation in the middle of the period, but no clear trend can be spotted. This leads to conclusion, that nearly all the rise of regional variability of EA p.c. is caused by the second part of this aggregate, number of employees. Regional average wages and salaries were quite stable and therefore did not contribute to the divergence trend of EA p.c. considerably.

4.4.3 Regional structure of employment

Specific factor of development is structure of employment. It is undergoing major changes in the transformation period, especially due to restructuralization of industry and rising importance of tertiary sector. That is why in Serbia the share of employees in primary sector fell from 4,96 % to 3,85 %, in secondary sector from 47,56 % to 37,85 % and in tertiary sector the share rose from 47,48 % to 58,24 % between 2001 and 2007 (Municipalities of Serbia 2002 - 2008). The shifts in regional structure of employment will be examined using cartograms in this section.

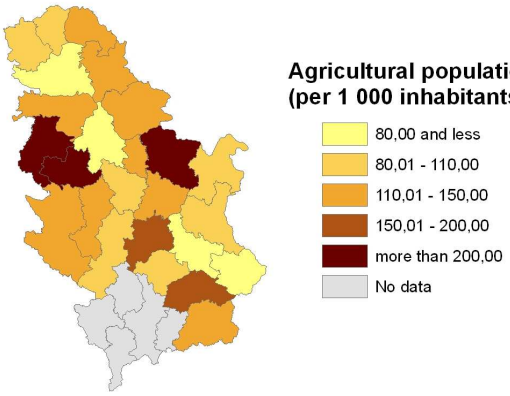
Picture 1: Share of employees in primary sector (%) in 2001 and 2007



Source: publications of RZS (see References, Statistical sources), own calculations

Picture 1 shows that the share of employees in primary sector reduced slightly in the whole country. Higher values are connected with advanced agriculture typical for Vojvodina. Share between higher than 3,5 % was additionally realized in 2001 in a number of peripheral regions from Mačva, Moravica, Zlatibor, Toplica and Jablanica to Zaječar and Braničevo. In 2007, this border was crossed only by Vojvodina and Toplica, Jablanica, Zaječar and Braničevo. This confirms the general but not very strong decrease of employment in agriculture, although three districts, Kolubara, Rasina and Toplica reported slight increase. In Toplica and Rasina, it was a clear consequence of industrial crisis, but in Kolubara it was against all assumptions accompanied also by rise of employment in secondary sector.

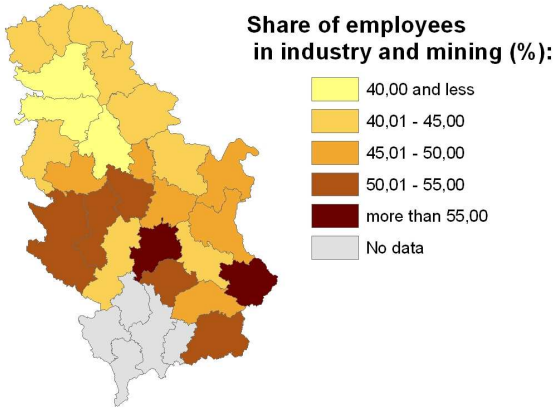
Picture 2: Share of agricultural population according to census 2002



Source: publications of RZS (see References, Statistical sources), own calculations

Other insight into the rurality of regions offers the counting of agricultural population, exercised during Census 2002, cartographically represented in Picture 2. The highest proportion of agricultural population is in Mačva, Kolubara and Braničevo districts, generally the regions from the north of Central Serbia. Lower shares are in the main metropolitan areas and in regions with less favorable conditions for agriculture, like those in eastern Serbia. Striking is the dispropotion between the share of agricultural population and employees in agriculture, the patterns in Picture 2 and Picture 1. Vojvodina has generally much higher share of employees in agriculture, but those seem to be the only agricultural population. There is no contingent of farmers working for their own needs. On the other hand, south of Sava and Danube, less comercialized agriculture represented by individual farmers working for their and their families's needs seems to be much more common.

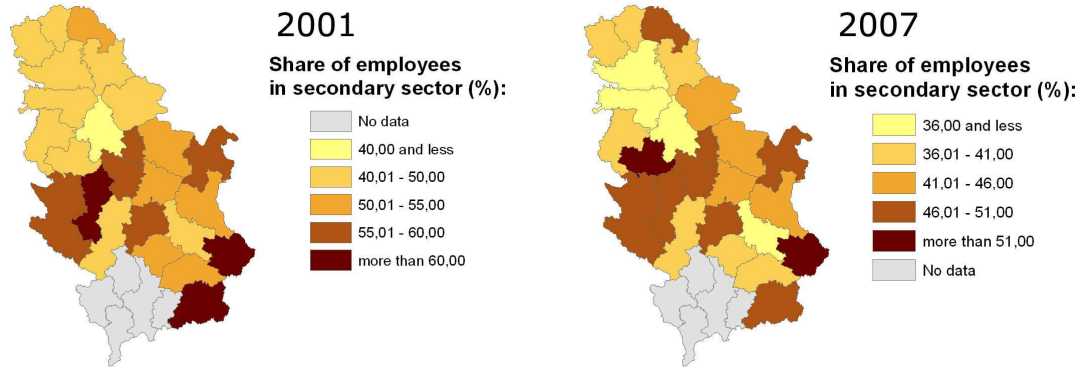
Picture 3: Share of employees in industry and mining (%) in 1989



Source: publications of RZS (see References, Statistical sources), own calculations

As an example of structural pattern before the dissolution of Yugoslavia, share of employees in industry and mining in 1989 is presented in Picture 3. Figures under 40 % had only Južna Bačka, Srem and Beograd districts, while many districts on western and southern periphery reported values over 50 %, which are, considering their questionable predispositions and traditional underdevelopment, very high. This is a confirmation of the common thesis of Serbian regional economists about the artificial and extensive over-industrialization of less developed areas.

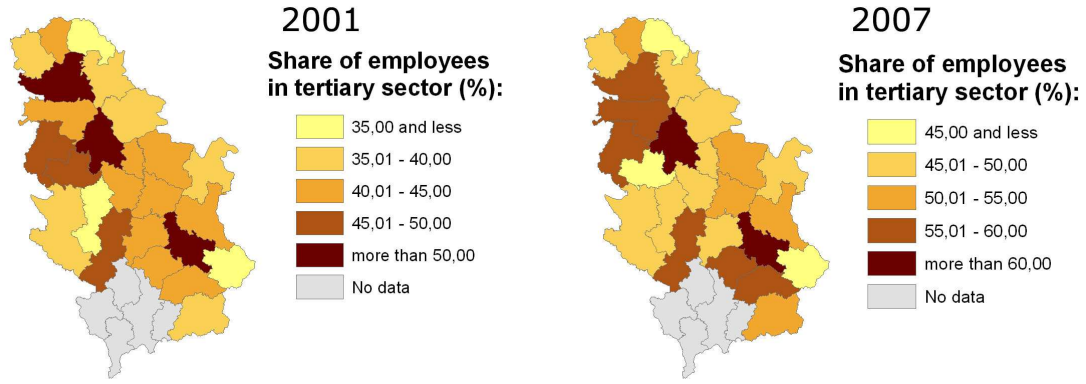
Picture 4: Share of employees in secondary sector (%) in 2001 and 2007



Source: publications of RZS (see References, Statistical sources), own calculations

For further analyses, share of employees in secondary sector is used - besides industry and mining also construction and energetics are included. Picture 4 shows the change of regional pattern of this characteristic. In 2001, the industrialization was still very high in most of Central Serbia. Only the districts of Mačva, Kolubara, Raška, Nišava and of course Beograd had the share of employees in secondary sector lower than 50 %. On the other hand, there was only one district with secondary sector share higher than 50 % in Vojvodina - Severni Banat. Industry was the sector damaged by transformation at most and it expressed itself into secondary sector share development during the next years significantly. There were only two districts left with more than 51 % in 2007 - Kolubara and Pirot. Among them, Kolubara got more industrialized over the transformation period, experiencing exceptional FDI inflow and besides that being strategically exploited for its lignite reserves. There were still many districts with around 50 % of employees in 2007 in Central Serbia, but there is always the problem of inadequate employment rate in Serbia, so it does not mean extremely high numbers in general. Just like in 2001, most Vojvodinian districts and hierarchically higher centres of Beograd and Niš had lower proportion of employees in secondary sector.

Picture 5: Share of employees in tertiary sector (%) in 2001 and 2007



Source: publications of RZS (see References, Statistical sources), own calculations

As presented in Picture 5, during hitherto transformation, Serbia has undergone excessive tertiarization. While in 2001 the share of tertiary sector exceeded 50 % only in the most important metropolitan areas of Novi Sad, Beograd and Niš, in 2007 it was in a significant part of Serbia including the underdeveloped southern and eastern parts. The progressive nature of tertiarization is questionable as this process might have been a delayed sign of industrial decline. Where there were other sectors receding, stable tertiary highered its share in overall employment.

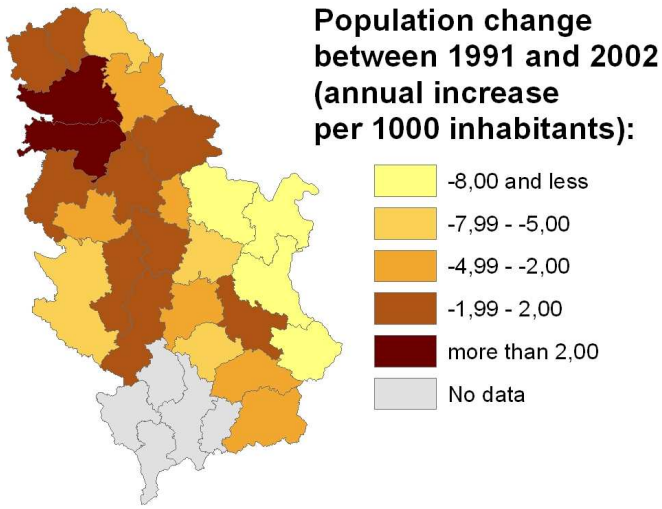
4.4.4 Regional differentiation of demographic characteristics

Demographic development in Serbia was influenced by some of specific factors. (1) Serbia enjoyed special relationships with Western European countries is the post-war period, practicing socialism inside, but allowing its citizens to travel quite freely. Therefore, strong Serb communities settled in Western Europe during 1960's and 1970's as „Gastarbeiters", and lots of them did not return. New waves of emigration, this time including the educated Serbian elite, followed in the 1990's as a result of war, isolation and repressive regime in the country. (2) While some were escaping the country in 1990's, at least two huge waves of war refugees[1] poored into Central Serbia and Vojvodina. First wave came from Croatia in 1995 and second from Kosovo in 1999. Together there were still 341 060 persons of concern to United Nations High Commissioner for Refugees (UNHCR) in 2008 (UNHCR Global Report 2008) and this number used to be much higher. Significant proportion of all these will never return to the place of their origin and many

[1] Serbs and other ethics coming to Central Serbia and Vojvodina from Kosovo would be more properly called internally displaced persons, as only people forced by war, fear of persecution etc. across state boundaries are called refugees. (UNHCR Global Report 2008)

refugees are already permanently settled in Serbia and scraped from statistics. Places of their concentration, particularly southwestern Vojvodina, Mačva and big cities, were influenced strongly by this population inflow. (3) In some parts of Serbia, there is a strong share of ethnic minorities. Some of those have different demographic behaviour habits - Albanians and Bosniaks in southern Serbia have generally higher population vitality, the opposite would be expected from the more demographically transitioned Hungarian minority in Vojvodina. (4) The object of examination in this work is district. If demographic analyses are performed in a more detailed way, strong polarization between municipality centers and rural settlements is observed. This depopulation of smaller settlements is often presented as the major problem of Serbian regional development, as it is extremelly complicated to reverse this process (Rosić 2004, Filipović 2007).

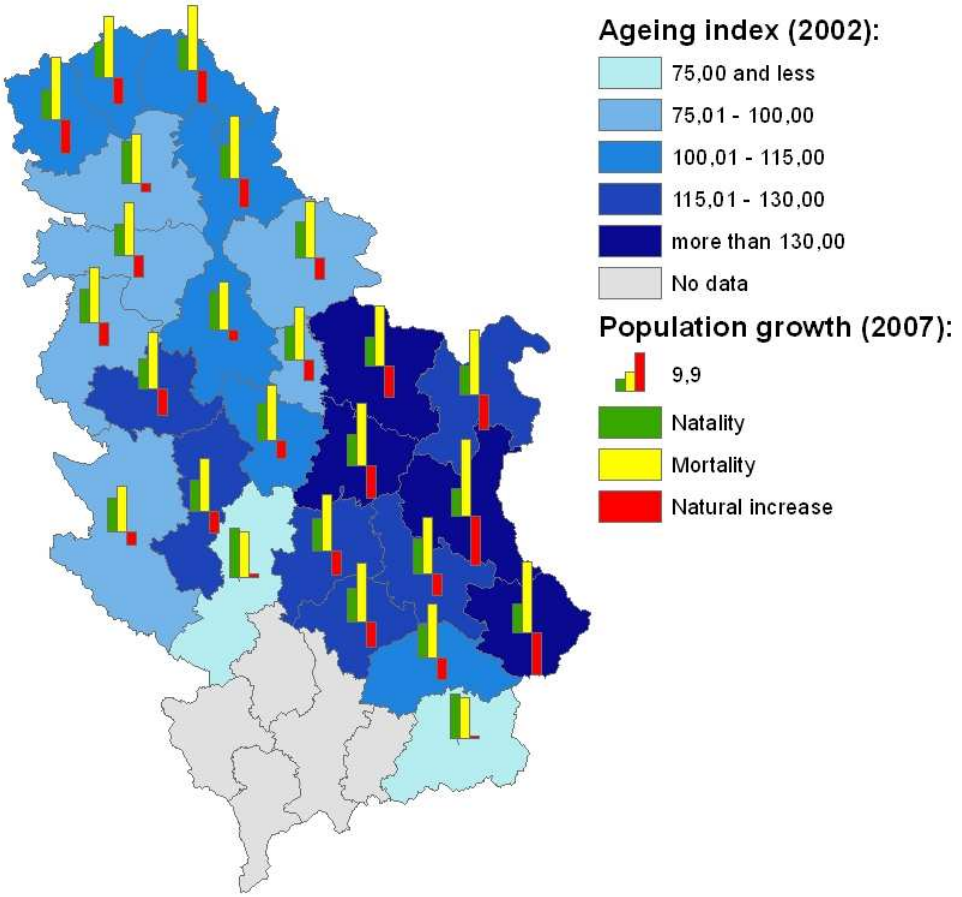
Picture 6: Average annual population increase between 1991 and 2002



Source: publications of RZS (see References, Statistical sources), own calculations

The best insight into the population changes during the crisis of 1990's offers the comparison of the last two censuses, in 1991 and 2002, as presented in Picture 6. Stronger population increases were reported only in two districts, Južna Bačka and Srem, which were the final destination of most war refugees. Similar was the reason for moderate development in Mačva and the northwest of Bačka. Neither strong decrease nor increase was reported in districts with hierarchically higher regional centres - Beograd, Niš, Kragujevac or Pančevo and in the middle part of Central Serbia, Moravica and Raška district. The worst development trend is obviously in eastern Serbia, where the annual decrease exceeded 8 per 1000 inhabitants. These regions traditionally tend to emigration. They are not economically atractive and especially Bor district was struck by the crisis of 1990's stronger than most others.

Picture 7: Ageing index and characteristics of population growth in 2007



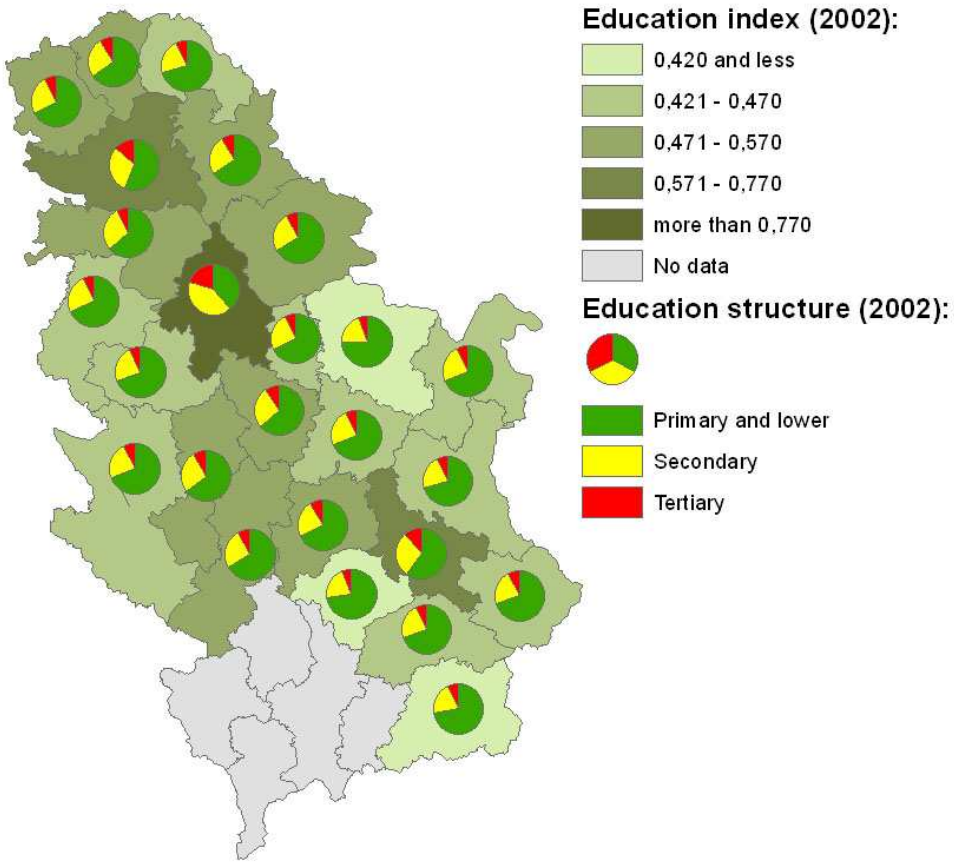
Source: publications of RZS (see References, Statistical sources), own calculations

Picture 7 shows the ageing index based on population census 2002 and the graph of natality, mortality and natural increase in districts in 2007. The youngest population based on ageing index is in Raška and Pčinja district. In Pčinja and in the neighbouring Jablanica most of Albanian minority in the area of Central Serbia is concentrated. The south of Raška and the south of Zlatibor are called Sanđak[1] and concentrate most of the Bosniak minority. Both these ethnic groups have typically high natality, therefore their population structure differs strongly from the rest of Serbia. Concentration of younger population to major regional centers with more economical opportunities causes them to have better population structure and demographic development. Likewise, Srem and Mačva have positive indicators because of the inflow of refugees, which were mainly of lower and middle age - old people often refused to leave their residences in contested areas. Specific is the north of Vojvodina - its Hungarian population possibly follows the pattern typical for their nation state, causing low population vitality, but because of its higher

[1] It was the last part of Serbia liberated from Ottoman empire. Serbs prefer to call it Stari Ras, referring to a Serbian state from the Middle Ages.

development level, it is not as affected by emigration of younger people so strongly. Therefore the ageing index in emigration stricken eastern Serbia is much higher.

Picture 8: Education index and structure in 2002



Source: publications of RZS (see References, Statistical sources), own calculations

Important indicator of socio-economic potential of a region is also education structure. Picture 8 shows the shares of population according to level of education and aggregate characteristic of education index of Serbian districts. The polarization of these indicators is clear and strong. Belgrade is the only districts with more than half of inhabitants with secondary and tertiary education, therefore reaching 1,47 times higher score than second and 2,83 times higher score than last region according to education index. These differences are caused by cumulation of agglomeration advantages. Concentration of economic activity goes hand in hand with location of education institutions and administrative institutions, as would core-periphery theories of regional development suppose. The findings of this work so far support these presumptions, because other places with highly educated population are Južna Bačka and Nišava while the lowest values are recorded on periphery, especially in southern and eastern Serbia.

5 Multivariate analyses of regional development

Since the basic economic aggregates showed some major inconsistencies, it is obvious that regional variability and its development has some more dimensions even solely in the economic field. Therefore, a wider set of characteristics is compared in this chapter using component analyses. In this set, there are some basic economic aggregates, indicators of economic structure, development indexes, characteristics from the beginning of observed period, demographic indicators and population density as a specific feature of concentration of population. Precisely, the 21 indicators used in component analysis are presented in Chapter 2.3.3.

5.1 Principal component analysis of regional development indicators in Serbia

Used dataset does not fulfil the strictest criteria for suitability for component analysis, as the Kayser-Meyer-Olkin (KMO) Measure of Sampling Adequacy reaches only 0,509, which is not the most favorable value. On the other hand, Bartlett's Test of Sphericity resulted with 0,000 significance, which would suggest perfect suitability of data for component analysis. In the end, KMO is not a statistical test and for such a high number of characteristics it tends to show lower values. The other test's result was good, so the presented dataset can be approved as appropriate for further analyses.

Table 10: Total variance explained by exctracted components

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumu-lative %	Total	% of Variance	Cumu-lative %	Total	% of Variance	Cumu-lative %
1	9,042	43,058	43,058	9,042	43,058	43,058	6,030	28,716	28,716
2	3,020	14,379	57,437	3,020	14,379	57,437	3,797	18,079	46,795
3	2,361	11,242	68,680	2,361	11,242	68,680	3,614	17,209	64,004
4	2,138	10,181	78,861	2,138	10,181	78,861	2,644	12,591	76,595
5	1,675	7,977	86,838	1,675	7,977	86,838	2,151	10,243	86,838

Extraction Method: Principal Component Analysis.

Sources: own calculations based on publications of RZS (see References, Statistical sources)

The criterion for extraction of components were Eigenvalues higher than 1. In this case, as shown in Table 10, 5 components suited this criterion, the fifth having Eigenvalue 1,675, in rotated solution 2,151. In the initial solution, the first component explained 43,058 % of total variance, the second 14,379 %, the third 11,242 %, the fourth 10,181 % and the fifth 7,977 %. The sixth component would have Eigenvalue 0,682 and would explain 3,248 % of total variability, which is a

considerable difference against fifth component, proving that this is a major break in reliability of extracted components. After rotation, the first component explains 28,716 %, the second 18,079 %, the third 17,209 %, the fourth 12,591 % and the fifth 10,243 % of the total variability. The cumulative variability explained by all exctracted components does not change with rotation and accounts for 86,838 %, which is a reasonable amount. Also the shares of variability explained by individual components are quite balanced, which enables their use in cluster analysis in unweighted form.

In case of total share of variability of characteristics explained by component analysis solution (the adequacy of solution), all the values are satisfactory, though by NI p.c. index, agricultural population and annual population change between the last two censuses they are below 80 %. The best level of extraction has EA p.c. in 2007 and education index, those are practically perfectly explained.

In the initial solution most of variability explained was concentrated into first component that was fed mainly by indicators connected with development level. Second component covered some development characteristics, third component demographic traits, fourth mainly indicators connected with agriculture and fifth with industry. This distribution showed some patterns, but loadings were not maximized and precise interpretation would be complicated in some cases.

Table 11: Rotated component matrix

	Component				
	1	2	3	4	5
Employment in progressive sector 2007	,934				
Education index 2002	,917				
Employment rate 2007	,839				
EA p.c. 2007	,817				
Population density 2002	,800				
Agricultural population share 2002	-,754				
Employment rate index 2007/1989		,924			
EA p.c. index 2007/2001		,862			
NI p.c. index 2004/1989		,673			
Unemployment rate 2007		-,601			
Employment in agriculture 2001			,841		
NI p.c. 1989			,714		
Unemployment rate index 2007/2001			-,668		
NI p.c. 2004	,645		,656		
Employment in industry and mining 1989			-,592		,535
Ageing index 2002				-,935	
Natural increase 2007				,925	
Population index 2002/1991				,676	
Employment in industry and mining 2007					,907
Employment in industry and mining index 2007/1989					,621
Employment in industry and mining 2001					,568

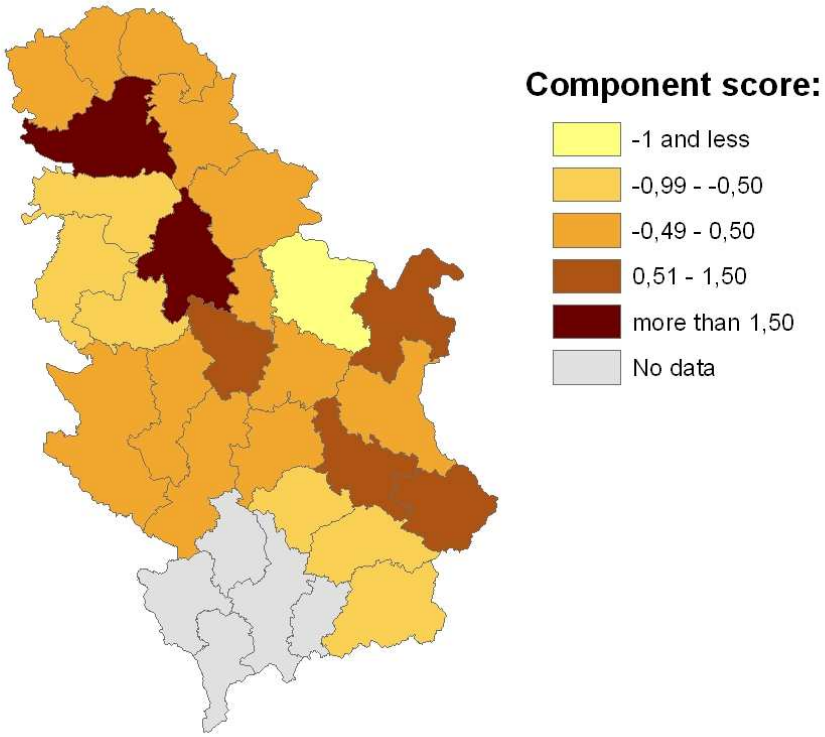
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 11 iterations.
Loadings lower than ,500 are not shown.

Sources: own calculations based on publications of RZS (see References, Statistical sources)

In the rotated solution, as presented in Table 11, the interpretation of components is much easier. The first dimension of variability is represented by high employment in quarter, education index, employment rate, economic aggregate p.c. and population density and lower share of agricultural population. Also, the latest data for NI p. c. have reasonable positive component loading. Acknowledgeding what characteristics are typical for the first component, it seems that it represents the concept of settlement system hierarchy, the regions with the important education centers, high concentration of jobs, mainly those progressive ones and

urban character indicated by low share of agricultural population. Of course, areas like this also tend to show higher economic development level, which also proves to be right from the results.

Picture 9: Component scores of Component 1



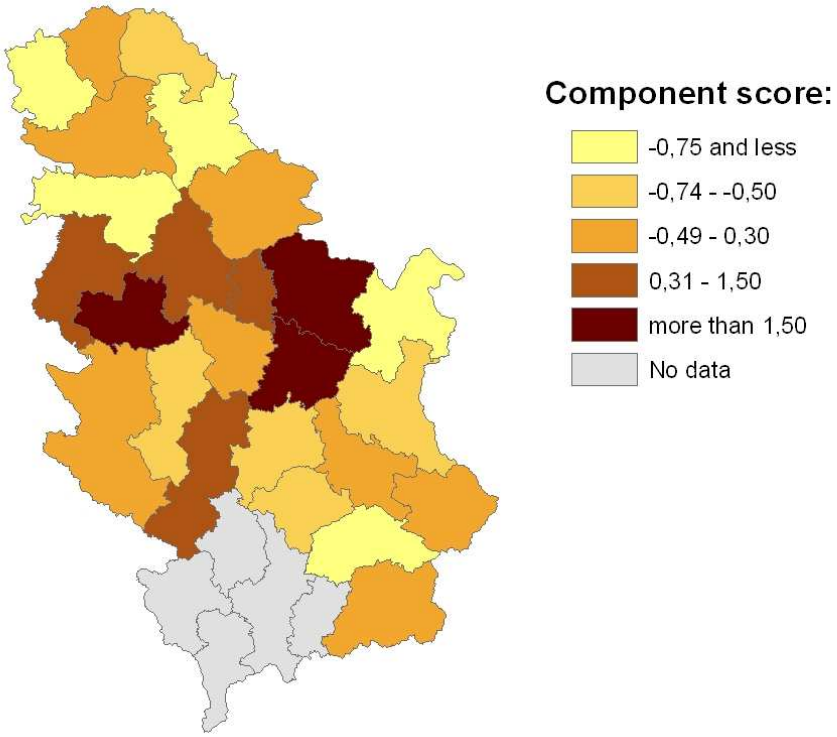
Source: own calculations based on publications of RZS (see References, Statistical sources)

Picture 9 proves the expectation that Component 1 is mostly determined by the position in the settlement system hierarchy. The strongest scores are to be seen in Beograd and Južna Bačka, where the first and third biggest cities in Serbia lay. Also the districts of Nišava and Šumadija, with second and fourth biggest city and major tertiary education centres have reasonably high scores. Therefore, the first component will later on be called Hierarchy component as both its loadings and distribution correspond with the position of districts in the settlement system hierarchy.

The second component, as presented in Table 11, comprises mainly of development indexes, especially employment rate index between 1989 and 2007 and EA p.c. index between 2001 and 2007 have very high loadings. That means, that the main point behind this dimension of variability is employment rate development, because it is also present in economic aggregate, because the wages included in EA did not spatially differentiate. Negative loading of recent unemployment rate is quite high too. Nevertheless, NI p.c. index between 1989 and

2004 has also significant loading, proving that the development covered by the component spreads also to general economic dimension.

Picture 10: Component scores of Component 2



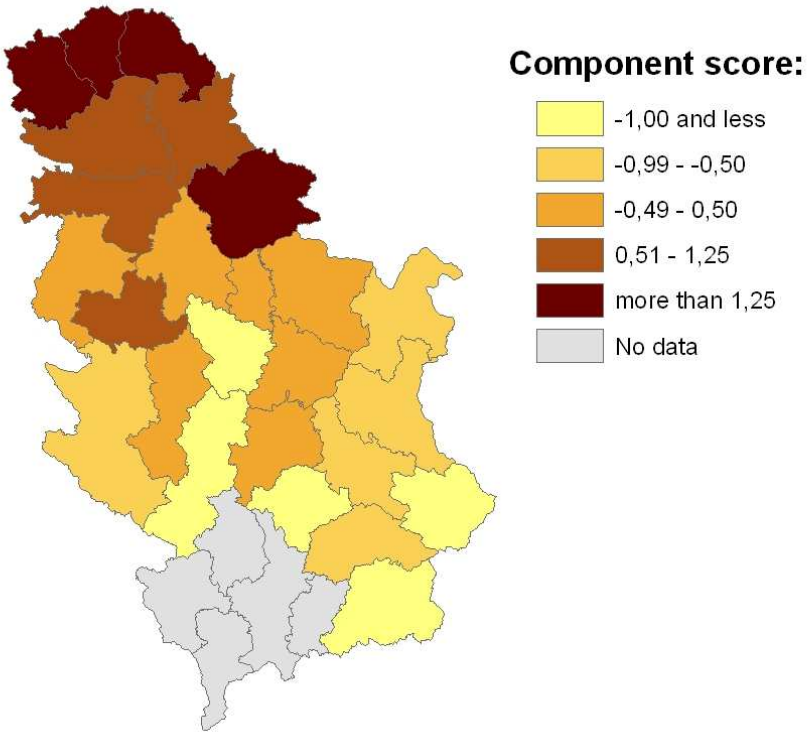
Source: own calculations based on publications of RZS (see References, Statistical sources)

The spatial distribution of Component 2, as presented in Picture 10, shows its highest values concentrated in the northern part of central Serbia. In the regions of Kolubara and Braničevo the main coal basins in Central Serbia are located and energetics are one of the few branches of Serbian industry that did not suffer a major decline (Grčić, Ratkaj 2006). In addition, together with Pomoravlje, they have quite suitable conditions for agriculture, which in the period of industrial decline did not suffer that much. But the main reason would be the general success in restructuralization of their main industrial complexes combined with very low initial level of development. Some of the regions, which had a lot better starting position, like Srem, Zapadna Bačka, Srednji Banat or Bor, on the other hand, figure among districts with much lower scores. Keeping these characteristics in mind, Component 2 will be called Development Success component.

Third component is characterised by high loadings in employment in agriculture, initial and final NI p. c., the latter being a little less significant, and consirably low loadings in unemployment rate index between 2001 and 2007 - meaning positive development - and initial share of employed in industry and

mining. This composition indicates, that this component characterizes mainly regions developed on the basis of advanced agriculture rather than extensive secondary sector. Higher development level represented by third component is of traditional character and was, in comparison with Serbian average level, kept all the way during the crisis of the 90's and the beginning of transformation.

Picture 11: Component scores of Component 3

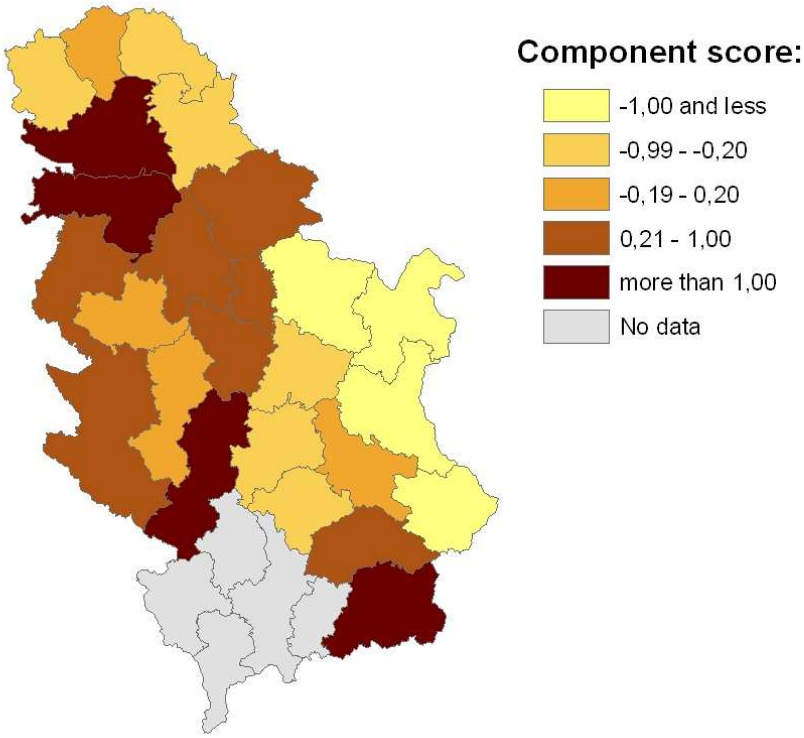


Source: own calculations based on publications of RZS (see References, Statistical sources)

Picture 11 shows, that Component 3 represents typical pattern for Vojvodina, which is the area with the highest scores. The distribution also shows a clear north-south gradient, corresponding well with predispositions for agriculture, as hilly and mountainious areas in the south of Serbia have the lowest scores. This component could be interpreted as zonality, but with respect to the strongest loadings, it will be called Intensive Agriculture component, as this seems to be the underlying factor of zonal composition of this component's scores rather than proximity of some external pole of development.

The fourth component has very high negative loading on ageing index and positive loading on natural increase. Strong connection with the component has also population increase between 1991 and 2002. From this, it is clear, that this component represents demographic behaviour of population.

Picture 12: Component scores of Component 4

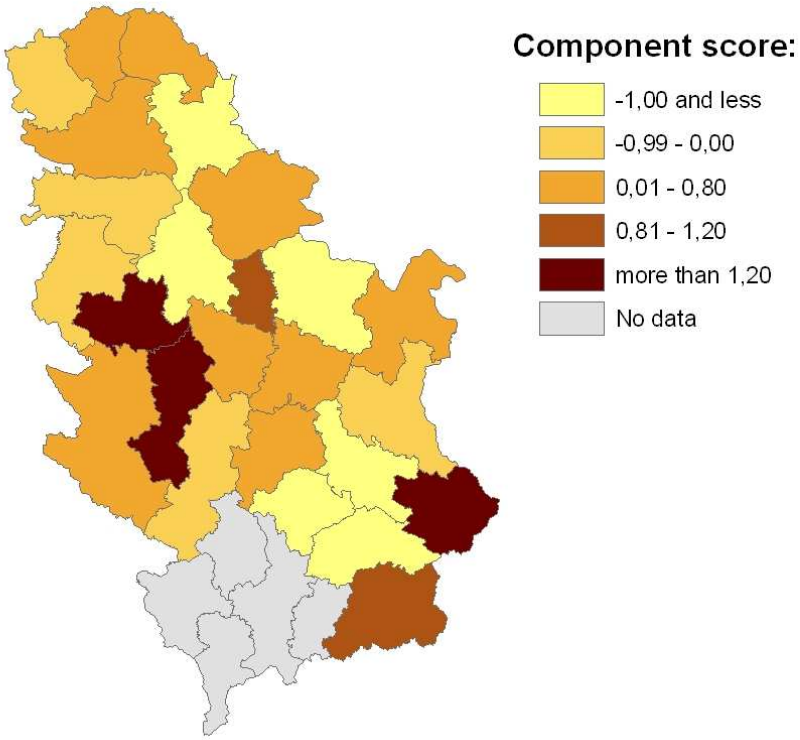


Sources: own calculations based on publications of RZS (see References, Statistical sources)

There are two types of areas with highest scores for Component 4 visible in Picture 12. First are the regions of Vojvodina closest to Croatian borders, which have positive demographic development thanks to inflow of migrants from ethnic Serbian areas in neighbouring countries and also from Kosovo. The second type of areas highlighted in Picture 12 are regions with national minorities, Bosniaks in Raška and Albanians in Pčinja, which have different demographic behaviour from Serbs. Component 4 will be called Demography component.

The fifth component has the highest loading in the most recent employment in industry and mining, somewhat lower but still considerable are those for index of the same characteristic between 1989 and 2007, and its figures in 1989 and 2001. This indicates that this component features mainly level of industrialization reached in 2007, with earlier figures for the same characteristic having similar pattern.

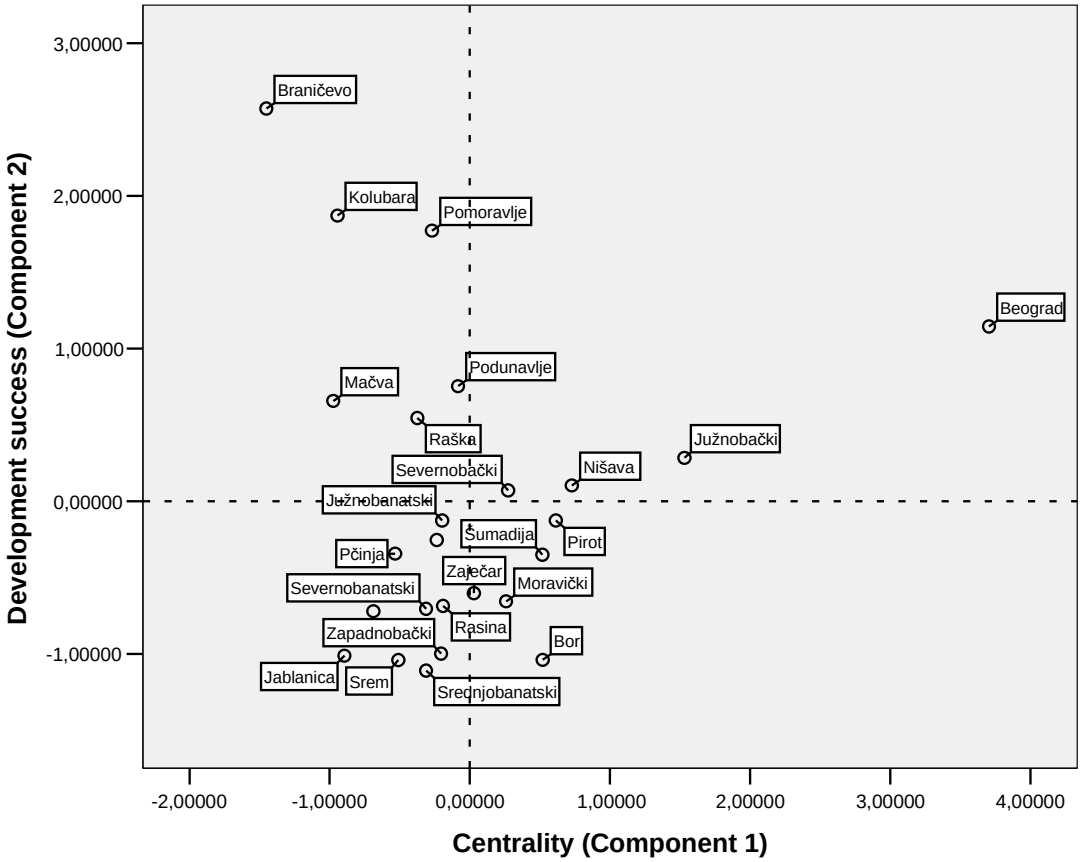
Picture 13: Component scores of Component 5



Sources: own calculations based on publications of RZS (see References, Statistical sources)

In Component 5, as featured in Picture 13, there are some regions standing out. Those are Kolubara with strong energetics sector and industrial centre of Valjevo, Moravica district with diversified structure of industry and Pirot with strong rubber industry company. Also in Pčinja district, which is strongly dominated by the industrial city of Vranje and Podunavlje with US Steel owned metalurgic factory, the scores are high. Component 5 will be called Industriality component later on.

Graph 15: Scatter plot of Components 1 and 2

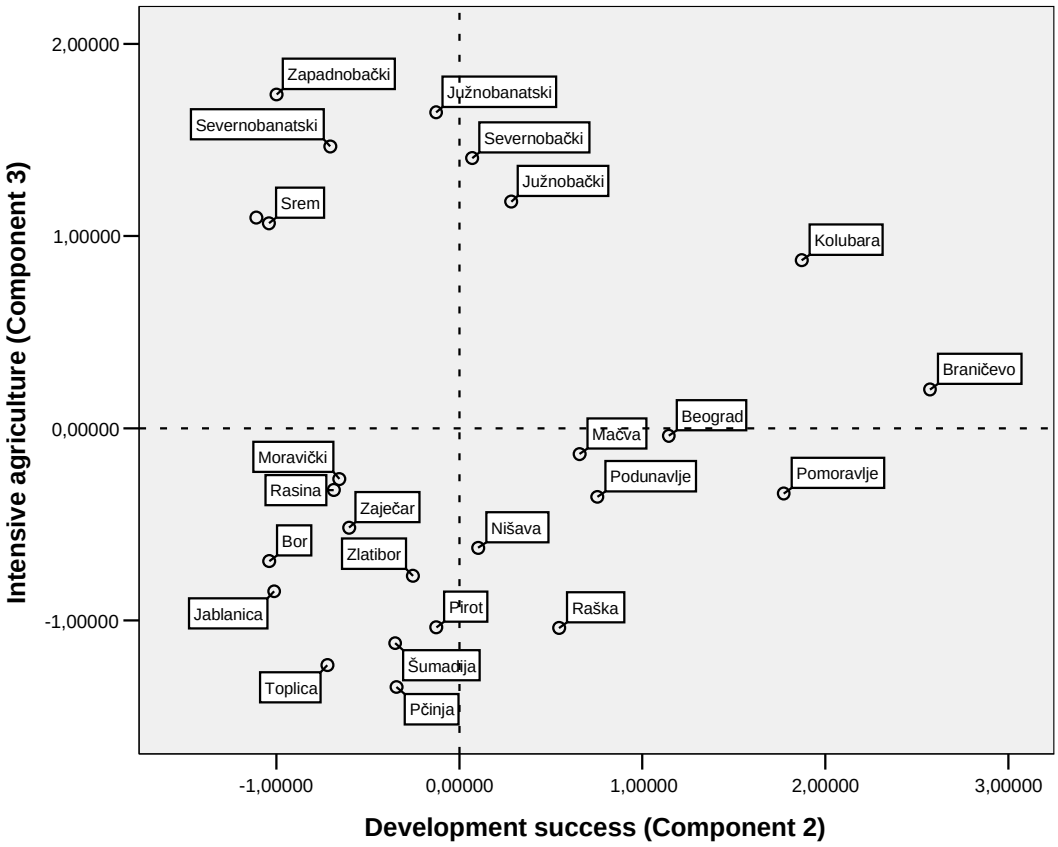


Source: own calculations based on publications of RZS (see References, Statistical sources)

To analyze the regional component scores more complexly, some graphical features will be examined. Graph 15 is the scatter plot of Hierarchy and Development success components, showing the distribution of regions according to the scores. It is important to note, that there is no correlation between the two component scores and therefore there is no trend present in the data. These indicators can serve only for some typological considerations. In the first, upper right segment, developed metropolitan regions - Nišava, Južna Bačka district and the City of Beograd are present. Because of their advantages in concentration, they managed to experience reasonable development, with Beograd as the capital being the most successful. On the border of the segment, there is one more region - Severna Bačka district, that can exploit its location near Hungarian border. Interesting is also the fourth, upper left segment, where regions with low Hierarchy and high Development success scores are concentrated. Those are mostly regions from the north of Central Serbia, which were characteristic by a strong decline in the crisis of 1980's and 1990's, but show many signs of recovery based on their

favorable position close to Beograd and industrial tradition, which is stronger than in the south and east of Central Serbia.

Graph 16: Scatter plot of Components 2 and 3



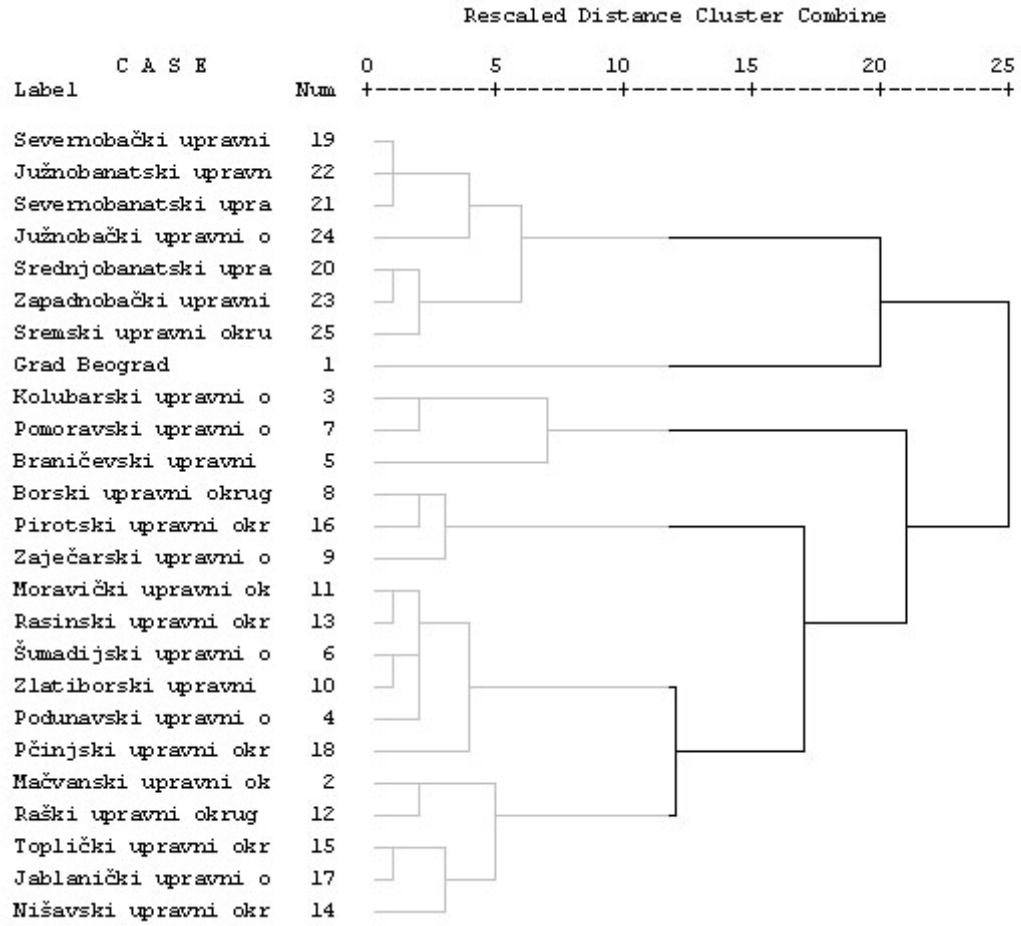
Source: own calculations based on publications of RZS (see References, Statistical sources)

Graph 16 shows the distribution of regions according to Development Success and Intensive Agriculture components. The groupings in scatter plot correspond nicely to geographical position of districts. High Intensive Agriculture scores with Development Success depending on individual regional conditions characterizes the districts of Vojvodina. Very high Development Success scores with mostly middle level Intensive Agriculture characteristic are typical for the north of Central Serbia. The middle and southern part of Central Serbia is characterized by middle to low Development success score and lower Intensive agriculture scores, with the exception of Nišava and Raška, which have somewhat higher Development Success score, but still are easily distinguishable from the districts from the north of Central Serbia. Some patterns like this, with respect to other components and more detailed in evaluation of their distribution, are to be expected also from the cluster analysis presented in the next chapter.

5.2 Typology of Serbian districts using cluster analyses

As a common way to analyze the outcome of component analysis, cluster analysis is used to appoint which units have similar scores. There were multiple methods of clustering compared to appoint the best approach. This way, the Ward method was selected. Its clustering results were the most balanced and informative and therefore it will be used here to present a basic typology of Serbian districts based on PCA results (see Chapter 5.1).

Graph 17: Dendrogram using Ward Method

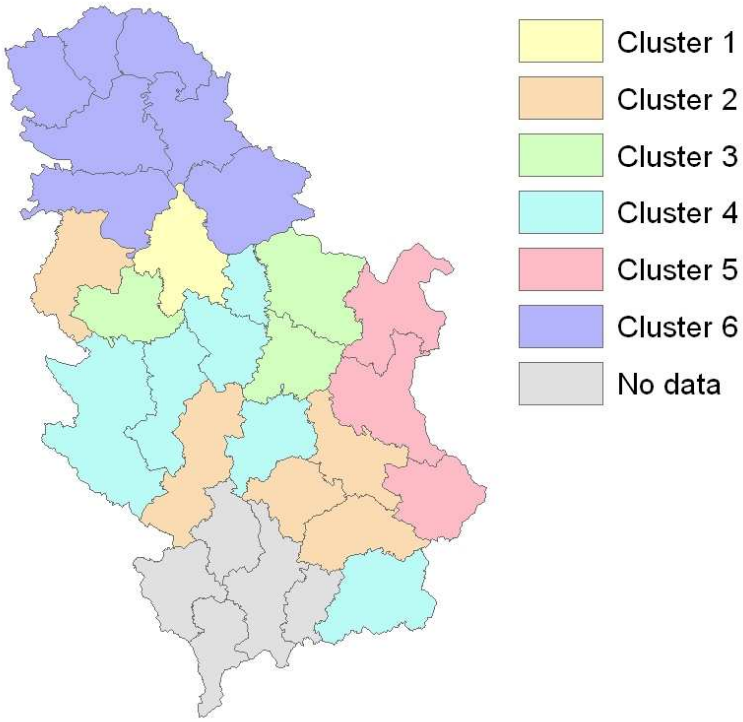


Source: own calculations based on PCA (see Chapter 5.1)

The dendrogram presented in Graph 17 shows the agglomeration schedule of clustering. Ward method fragments the set in first place into Beograd and Vojvodina in one cluster and the whole Central Serbia in second, thereby confirming a strong difference between developed northern part of the country and the rest of it. From second division the three regions from Central Serbia characteristic by their dynamic development come out as a specific cluster. Only in third step, Beograd is separated from Vojvodina. Then, eastern Serbia is set apart and in the sixth

division, the major Central Serbian cluster is divided again. The six cluster solution seems to be optimal, as the conglomerates of units are quite solid, homogeneous. The next district disagregated would be Braničevo from Kolubara and Pomoravlje, which would already fragment the clusters too much.

Picture 14: Cluster membership using Ward Method



Source: own calculations based on PCA (see Chapter 5.1)

Table 12: Characteristics of clusters using Ward Method

Ward Method		Hierarchy	Development succes	Intensive agriculture	Demography	Industriality
Cluster 1	N	1	1	1	1	1
	Mean	3,70	1,14	-0,04	0,25	-1,30
Cluster 2	N	5	5	5	5	5
	Mean	-0,44	-0,09	-0,78	0,49	-1,06
Cluster 3	N	3	3	3	3	3
	Mean	-0,89	2,07	0,25	-0,63	0,20
Cluster 4	N	6	6	6	6	6
	Mean	-0,04	-0,26	-0,70	0,53	0,86
Cluster 5	N	3	3	3	3	3
	Mean	0,39	-0,59	-0,75	-1,82	0,48
Cluster 6	N	7	7	7	7	7
	Mean	0,04	-0,52	1,37	0,21	-0,08
Total	N	25	25	25	25	25
	Mean	0	0	0	0	0

Source: own calculations based on PCA (see Chapter 5.1)

Picture 14 shows the resulting distribution of district into clusters. Cluster 1 is Beograd alone with very high Hierarchy score, Development Success over average and lower Industriality, as presented in Table 12. Its position in the settlement system hierarchy of Serbia is uncontested.

Cluster 2 is composed of five districts, Mačva, Raška, Nišava, Toplica and Jablanica. Its main common characteristics distinguishing it from other clusters are low Industriality and Intensive agriculture scores. Also, the average position of its districts in the settlement system hierarchy is lower. The main internal heterogenity of this cluster lies in Demography scores, where Mačva and Raška have considerably higher scores than other districts. Other special case in this cluster is Nišava, which is the main centre of southern Serbia with according Hierarchy score. Cluster 2 generally gathers less industrial districts of Central Serbia. These have been subject to strongest decline of industry during the crisis of 1990's and their recovery is whether slower than in the rest of Central Serbia or concentrated in other economic fields than industry.

Cluster 3 consists of three districts, Kolubara, Braničevo and Pomoravlje. Its main characteristic is very high Development success score and low Hierarchy and Demography scores. It is the most heterogeneous cluster of the presented solution, with Braničevo being a completely distinct case characterized also by much lower Demography and Industriality scores than Kolubara and Pomoravlje. The whole cluster represents dynamically developing north of Central Serbia, that regains its potentials lost during 1990's with the help of FDI.

Cluster 4 is composed of six districts mainly from central and western part of Central Serbia, Zlatibor, Moravica, Šumadija, Podunavlje and Rasina and Pčinja from southern Serbia. Their characteristics are similar to those of Cluster 2, main difference being in higher Industriality scores. The most distinct case is Pčinja because of its very high Demography score due to its Albanian minority and low Intensive agriculture score, which is a sign of its different position in the north-south zonality. This cluster generally consists of Central Serbian districts in which industry is consistently a very strong factor in local economy. Nevertheless, its transformation is, unlike in the case of Cluster 3, progressing slowly and problematically.

Cluster 5 gathers three districts from Serbian eastern periphery, Bor, Zaječar and Pirot. Their main common characteristic is low Demography component score. They are extremely depopulating with unfavorable age structure not promising any change in the future. Unlike Braničevo, which also experienced

similar problems with negative population change, Cluster 5 regions have under average Development Success and Intensive Agriculture scores and higher Industrialization scores. They represent the eastern periphery of Serbia with significant long term demographic problems accentuated by ongoing transformation.

Cluster 6 consists of the whole autonomous area of Vojvodina. Measured by the outcomes of component analyses, it is characteristic by its high Intensive Agriculture score, which is the indicator that separates it from the rest of Serbia in the first place. Probably because of higher initial level of development, Development Success score is in average lower than in the rest of Serbia. The region of Vojvodina can still be divided into two groups of districts. Those with positive Development success score were Južna Bačka, Severna Bačka, Južni Banat and Severni Banat. Južna Bačka is still quite distinguishable from the rest, having thanks to Novi Sad much higher position in the settlement hierarchy. Less economic successful were Srem, Zapadna Bačka and Srednji Banat. This indicates internal heterogenization of Vojvodina, although on much lower level than in Central Serbia.

6 Conclusions

The aim of this work was to analyze the regional aspects of development in Serbia, regarding mainly its economic dimension. Changes in the general institutional framework in Serbia, including its relationships with wider neighbouring and European economic space, presents a factor that fragments the development of regional pattern into periods with various trends and tendences. In the first half of 1990's, Serbian economy was ruined by hyperinflation, sanctions, dissolution of Yugoslavia, wars in neighbouring areas or its irresponsible leadership. In consequence, decline of regional variability was expected. Sharp economic decline was in the middle of 1990's replaced by economic stagnation, that further deepened the Serbian lag behind other transition countries. In this situation, the 1999 NATO bombing campaign was a coup de grace to Serbian economy. Fortunately, it also brought an end to pseudo-socialist dictatorship of Slobodan Milošević and opened the way for the re-establishment of political and economic contacts with wider international community. Economic liberalization was expected to allow processes similar to those underlying regional development in other transformation countries, such as dynamic concentration to metropolitan areas or deepening of traditional economic zonality. The basic question is, whether regional development processes equivalent to those typical for most other post-communist economies prevail in Serbia, or if its regional pattern differs so strongly, that it would not allow a reasonable comparison. In further sections of this work, regional specifics within the general development pattern of Serbia are elaborated, to be synthesized in the end using multivariate analyses that should finally confirm the weight of individual dimensions of regional differentiation in total and precisely show their distribution on the territory of Serbia.

First hypothesis concentrates on the influence of economic crisis of the 1990's on regional variability in Serbia. The expected general decline in industry truly occured and indeed, in the first years of crisis it had a significant nivelization effect. Following the economic stabilization in 1994, the regional disparities also ceased to decrease and slowly climbed back to the initial value. Even the Kosovo crisis, which critically influenced general economic situation in Serbia, did not affect the level of regional variability. Therefore, this hypothesis was partially confirmed, with the objection that after a few years the crisis resulted in widespread economic cataclysm that remained stable during the rest of it. Nevertheless, the results will always be questionable because of the amount of informal economic activities. A sharp change in regional economic processes was realized in Serbia after the

democratic revolution in 2000. The previously twisted system of economic relations started to straighten out and its features newly resembled those of typical regional development during transition. Although there was a delay caused by ten-year prolongation of totalitarian system, the divergence trend started by liberalization of economic relationships was very dynamic. The starting regional variability in Serbia was already moderately high, but traditionally differentiated prerequisites for economic development promised a steep rise of disparities in an environment with relatively free competition. Here, the decline of industry also played an important role. The reason was that industrial recession started to be selective, hitting most seriously regions in Central Serbia, industrialized under the socialist regime. This kind of industrialization was characterized by its extensiveness, its forced character and its need for heavy subsidies to survive even under the socialist system. Competing on a free market, enterprises organized on this basis were not viable and caused widespread economic decline in traditionally underdeveloped areas, deepening their lag behind those that recovered faster. Therefore, the decline of industry led to geographical convergence only during the period of crisis. While the economy was growing, the industrial recession changed its character towards promoting divergence. Therefore, the first hypothesis is valid only during the initial phase of crisis of the 1990's. It is also worth mention, that the examination of EA p.c. development shows that the rise of variability was substantially driven by changes of employment rate. On the other hand, wages followed a homogenization trend.

The decline of industry, mostly influencing the economy of underdeveloped regions of southern Serbia, supports the second hypothesis. Especially during the 1990's, the expected north-south gradient covered even Beograd, which had development level lower than some regions in Vojvodina. This seems to be caused by socialist economic system, that did not allow some regions to develop their potentials to the fullest and by the materially based methodology of NI p.c., lowering its values in centres of tertiary sector. Just like in most other socialist countries, regions with mining and metalurgic complex were advantaged, but in Serbia also Vojvodina with progressive agriculture and diversified industry managed to prosper all the way through second half of 20th century. Its agricultural complex was its main comparative advantage also during the 1990's, as there were better conditions for it in Vojvodina than in the southern districts. Nevertheless, during transformation the position of Vojvodina as sole leader along with Beograd was threatened. Liberalization of economic relations allowed stronger differentiation also within Vojvodina, favoring other development potentials than the homogeneous conditions for agriculture. The component analysis could underlie some statements

regarding second hypothesis. The second strongest component shows, that the most successful regions, if ratios between distinct time series of various economic indicators are taken into account, are those from the northern part of Central Serbia. Therefore, it seems that the north-south zonality is getting milder, or rather more gradual. On the other hand, the third strongest component, the one with the strongest zonal differentiation of scores has (1) strong loading on NI p.c. in 2004, which means that the zonality of economic production per capita is preserved and (2) strong loading on unemployment rate index, which means that even though the dynamics of indicators of economic production do not strictly follow north-south zonality, the development perspectives of northern regions are promising. In addition, the same ratio between two years in a region with low initial value of an indicator means lower real increase than in a region with higher initial value. Summarizing all these findings, north-south zonality can be considered stable. The dynamic development of regions from the north of Central Serbia could be interpreted as a distortion caused by the proximity of Beograd or simply as a process of completion of the zonal differentiation, creating a moderately developed area between Vojvodina and the south of Central Serbia.

From the component analysis, it is clear that zonality is not the strongest determinant of regional development in Serbia. The most distinct component was that representing position in the settlement system hierarchy. From the concentration processes unleashed by liberalization of economic life metropolitan areas truly profited the most. With a higher position in functional hierarchy, they overcame industrial crisis by securing their place in newly thriving tertiary and quarternary sector. Relatively high concentration of job opportunities provided consistent inflow of migrants, education facilities provided advantage in human capital bringing progressive sectors of economy, concentration of power and contacts brought headquarters of both domestic and foreign companies and so on. The dominance of Beograd was clear and uncontested. Novi Sad had good preconditions not only because of its metropolitan character, but also due to its strategic industry. The position of Niš was telling more about the importance of position in the national settlement hierarchy. Although it was one of the areas most affected by the decline of industry, it experienced positive developement, as its function of regional centre of tertiary and quarternary sector increased in the system of free economic competition. The most contested can be the hierarchically high character of Kragujevac. Although it is quite a sizeable city, its position is not very favorable, being too close to Beograd and too far from main communication corridors. Although it is a seat of a university, its contemporary economic situation - main industrial complex still not recovered from crisis - does not favor

development of its central functions. Nevertheless, the three major centres in Serbia prove that this dimension of development is the strongest, taking over zonality, structural affection and various minor discrepancies in Serbian regional development pattern. Also the assumption, that the concentration processes would dominate mainly during the periods of economic growth proved to be right. During the times of the strongest economic decline, especially first half of 1990's and after the war in Kosovo, Beograd even lost its relative significance in Serbian economy. This irregularities in development, twisting the regular patterns during the 1990's also contributed to the extremely sharp rise of economic disparities in the transformation period.

Generally, it was confirmed that the two crucial dimensions of regional variability in Serbia are position in the settlement hierarchy and north-south zonality. Specific regional patterns are represented by the second, fourth and fifth component from the analysis presented in this work. Second component uncovers dynamically developing areas, mainly northern part of Central Serbia. Those are regions that were, considering their position, inadequatelly developed during the late self-management socialism period and crisis of the 1990's. As stated before, their dynamic development completes the gradual zonal configuration of regional pattern of Serbia. If Vojvodina would be exluded, the differentiation of Development success scores would indicate evolution, or possibly re-evolution, of clear north-south gradient in Central Serbia. Different regional pattern is also followed by demographic characteristics. Subject to major depopulation are mainly districts of eastern Serbia. Their age structure and reproduction characteristics will soon be a serious threat to economic functionality. The regions adjacent to Croatian border are in a different situation - in this area most of the Serbs fleeing Croatia resettled. Their inflow could present an extension of workforce contingent as well as a burden for social services. In time the positive effects should prevail and allow this region to develop more dynamically. Other regions with progressive demographic development are those characterized by a higher share of ethnic Albanian or Bosniak population. The areas where these minorities live are seriously underdeveloped and present one of the most complicated challenges to Serbian regional policy. The fifth and last dimension of variability extracted using component analysis presents irregularities in the general decline of industry present in Serbia during both crisis of 1990's and transformation. This proves that with proper restructuralization and privatization, industrial development could have been reached. Nevetheless, the limited number of successful regions, whether in agriculture, industry or other economic sectors confirms that a complex strategy is needed to reach wider regional development in Serbia. Being currently possibly the

most regionally heterogeneous country in Europe, it is specific by inherited underdevelopment of some areas, war and sanction damage or several decades long depopulation of peripheries. But as the processes of regional development resemble those in other transformation countries, the solutions could also be learned from them.

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Annexes

Annex 1: Administrative and statistical division of Serbia

Source: http://www.weltkarte.com/europa/landkarte_serbien.htm

Annex 2: Data used in multivariate analyses

district	Indicators used in component analysis																					Component scores					Cluster membership	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	1	2	3	4	5	ALBG	Ward
Beograd	227926	15,60	13272	383	22,61	134,23	97,47	122,15	76,87	52,75	25,73	124	12,83	18,83	1,50	24,79	1,4	-2,7	107,9	1,02	488,4	3,704	1,145	-0,039	0,254	-1,296	1	1
Mačva	95815	39,76	4339	190	242,21	104,19	89,70	99,54	108,05	40,40	40,63	67	3,80	29,73	3,39	40,63	0,1	-5,7	99,8	0,45	101,0	-0,974	0,657	-0,134	0,662	-0,921	2	2
Kolubara	93628	20,79	6059	253	254,26	85,30	110,53	103,47	78,15	55,91	48,00	80	2,45	44,04	3,08	38,54	-2,0	-6,8	122,2	0,45	77,7	-0,944	1,871	0,874	0,041	1,615	3	3
Podunavlje	87414	29,25	6717	222	134,60	75,89	87,90	128,28	99,14	48,53	45,38	84	2,38	42,31	2,27	47,18	-2,5	-5,0	97,9	0,47	168,2	-0,084	0,754	-0,357	0,523	0,997	4	2
Braničevo	116963	19,43	6021	210	251,57	123,32	128,93	128,74	101,19	30,20	41,54	69	1,82	20,37	4,49	41,49	-8,5	-8,0	136,3	0,36	51,9	-1,451	2,572	0,202	-1,231	-1,498	3	4
Šumadija	95591	34,27	5619	246	107,64	99,13	76,87	81,43	129,83	43,65	53,08	70	3,98	41,73	1,20	49,50	-1,4	-4,8	107,9	0,55	125,2	0,518	-0,351	-1,118	0,375	0,673	4	2
Pomoravlje	98013	29,00	6596	278	140,26	110,69	117,22	121,58	95,41	44,48	46,87	64	2,70	38,69	2,90	45,18	-5,2	-8,2	136,7	0,46	87,0	-0,270	1,773	-0,339	-0,711	0,480	3	3
Bor	84502	31,24	5935	224	108,69	45,68	78,71	94,90	153,15	36,09	49,90	135	4,65	37,40	1,79	48,92	-9,8	-9,2	121,9	0,46	41,8	0,520	-1,039	-0,691	-1,364	0,380	5	5
Zaječar	78700	32,35	4674	227	105,08	73,08	77,57	79,84	138,23	33,20	47,21	78	2,38	34,48	4,32	44,25	-10,4	-12,7	186,8	0,43	38,0	0,029	-0,603	-0,517	-2,548	-0,614	5	5
Zlatibor	91892	35,30	5527	229	137,01	79,14	78,75	92,18	109,29	34,78	52,99	85	2,51	37,53	2,09	49,62	-5,4	-3,1	91,2	0,46	51,0	-0,236	-0,254	-0,768	0,512	0,297	4	2
Moravički	119666	30,79	5178	239	141,71	82,98	73,90	74,96	119,79	44,03	54,99	105	3,91	44,18	2,83	56,38	-1,3	-5,3	115,7	0,52	74,5	0,259	-0,656	-0,264	0,066	1,411	4	2
Raška	73492	39,68	5330	243	102,43	90,83	101,35	108,19	105,25	39,30	41,87	59	2,61	27,68	2,64	40,17	-0,6	1,1	70,8	0,49	74,3	-0,375	0,545	-1,039	1,797	-0,789	2	2
Rasina	87869	35,00	4480	207	179,61	61,27	76,14	75,43	115,90	39,80	55,92	104	3,00	41,51	2,83	48,84	-4,6	-6,0	125,6	0,49	97,4	-0,191	-0,686	-0,321	-0,248	0,770	4	2
Nišava	129089	34,65	6007	260	79,42	107,31	86,60	97,58	94,92	35,83	44,97	88	5,02	26,60	1,70	38,15	-1,9	-5,5	120,8	0,63	140,0	0,728	0,103	-0,623	-0,101	-1,099	2	2
Toplica	69216	45,23	3251	177	109,71	83,75	82,43	82,47	126,68	25,81	53,19	60	1,70	29,75	4,37	49,62	-6,5	-6,5	118,3	0,4	45,8	-0,688	-0,721	-1,232	-0,291	-1,193	2	2
Pirot	93595	36,71	5384	268	54,19	83,93	96,19	88,75	127,01	47,98	58,28	81	4,24	47,77	1,73	56,09	-8,5	-10,8	159,5	0,45	38,3	0,614	-0,126	-1,036	-1,554	1,665	5	5
Jablanica	62067	48,14	3058	164	169,11	71,31	71,60	71,62	120,35	28,84	47,47	63	1,58	29,58	4,19	45,96	-3,8	-5,7	104,5	0,44	87,0	-0,895	-1,012	-0,848	0,376	-1,307	2	2
Pčinja	72626	41,51	3962	193	110,55	88,45	90,60	74,78	133,46	48,02	54,24	60	1,50	40,83	2,27	54,73	-3,8	0,7	59,7	0,41	70,1	-0,533	-0,344	-1,347	1,949	1,022	4	2
Severna Bačka	147009	21,63	7371	285	102,30	93,90	79,34	86,36	72,83	47,42	40,45	114	4,37	33,90	8,67	40,84	-1,1	-6,7	101,9	0,53	112,2	0,273	0,070	1,406	0,007	0,436	6	6
Srednji Banat	137886	38,07	5532	215	128,34	84,97	73,56	68,57	113,30	37,24	40,59	118	2,91	29,07	11,57	37,09	-3,5	-7,3	104,3	0,52	64,0	-0,312	-1,110	1,096	-0,222	-1,040	6	6
Severni Banat	143869	29,48	5936	231	146,76	81,34	70,59	67,89	88,01	43,56	42,19	129	2,83	39,30	9,11	47,00	-6,2	-8,2	105,3	0,44	71,3	-0,312	-0,705	1,467	-0,417	0,632	6	6
Južni Banat	180460	32,39	6854	238	129,02	103,33	89,11	77,99	91,76	51,54	40,76	127	3,23	36,91	10,53	42,70	-0,5	-5,5	98,8	0,5	74,0	-0,197	-0,127	1,644	0,374	0,575	6	6
Zapadna Bačka	157484	32,68	5907	227	99,24	86,65	74,28	76,64	96,99	38,45	42,13	132	3,06	33,60	13,36	40,04	1,4	-8,7	111,3	0,48	88,5	-0,205	-0,999	1,737	-0,352	-0,418	6	6
Južna Bačka	172314	23,11	10723	354	66,83	90,80	96,12	97,96	76,51	52,89	33,56	138	8,59	25,32	6,13	34,32	8,0	-2,0	88,8	0,7	147,9	1,531	0,284	1,180	1,080	0,103	6	6
Srem	96472	35,32	5020	191	125,51	65,14	75,75	72,72	102,08	40,40	35,41	108	2,99	27,29	9,16	39,63	9,3	-5,4	95,0	0,51	96,4	-0,510	-1,041	1,067	1,023	-0,882	6	6

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 3: Census population and NI p.c. in the districts of Serbia 1989 - 2004 (din.)

district	population		NI p.c.															
	1991	2002	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Beograd	1602226	1576124	105231	5088	10887	713845	-	2144	-	9876	13549	20090	22136	46345	68820	108782	134230	195383
Mačva	339644	329625	56990	2472	5176	383769	-	1507	-	5978	7302	10017	12945	26037	47082	55667	58306	85886
Kolubara	200560	192204	68021	2661	5948	266788	-	1859	-	6552	8704	12420	15709	31205	48338	60876	68893	83309
Podunavlje	226589	210290	71381	2177	4382	203986	-	1316	-	5578	8337	11628	9346	28946	41666	50812	59020	77461
Braničevo	253492	200503	58780	2371	5610	335581	-	997	-	6225	8078	11072	11713	20374	33067	66397	76241	97987
Šumadija	312160	298778	59757	3421	7288	309220	-	1507	-	5915	7389	11658	11248	24008	43002	51482	60814	79733
Pomoravlje	264108	227435	54873	2610	6183	479387	-	1648	-	6388	7618	10932	12483	27645	45569	65712	74495	84040
Bor	178718	146551	114643	3374	7996	607812	-	1643	-	8578	14865	15129	9964	23776	30954	43571	36182	62240
Zaječar	158131	137561	66743	2733	6817	471830	-	1670	-	5953	7879	10532	13373	31831	52739	52902	60164	65531
Zlatibor	335826	313396	71959	2970	7310	539687	-	1650	-	6190	7214	10932	12118	28876	40060	52168	63252	77287
Moravički	230748	224772	89369	3532	8420	770369	-	2301	-	7927	9771	15054	17606	35955	65779	72976	80321	103631
Raška	300274	291230	50145	2355	4919	391296	-	1067	-	4542	5435	7963	9212	21057	29084	40613	47447	60292
Rasina	269690	259441	88873	3466	7902	686232	-	2143	-	7179	9633	13314	14489	31281	50239	59816	65283	76921
Nišava	328461	381757	74548	3516	8308	652948	-	2506	-	8285	11031	15066	13991	31740	54531	72213	77826	113256
Toplica	111813	102075	51220	2184	5143	361836	-	1270	-	4416	5827	7945	9836	25125	37750	46685	49578	60923
Pirot	116926	105654	69113	2833	6072	412150	-	1642	-	5610	7561	10762	13219	25446	49601	56791	70826	83722
Jablanica	255011	240923	53939	2207	5913	411731	-	1326	-	4063	5779	7182	9448	21062	33977	43370	46913	54959
Pčinja	243529	227690	50887	2112	5695	445237	-	1493	-	5300	6568	10020	12443	26166	37799	50587	56732	62314
Severna Bačka	205401	200140	97024	4698	10350	837800	-	2570	-	9934	13826	18932	21128	44186	78164	88680	97068	128827
Srednji Banat	221353	208456	100565	4047	9975	754352	-	2271	-	9776	11473	15718	16861	31581	74463	78546	73187	120866
Severni Banat	179783	165881	109614	4009	9845	745488	-	2461	-	10456	12434	17887	20289	47975	92430	88991	82169	129728
Južni Banat	328428	313937	108230	4447	8626	480111	-	2764	-	8686	12663	17078	18687	44037	76992	98607	142923	156928
Zapadna Bačka	215916	214011	112634	4121	9416	804183	-	2756	-	9946	12693	18294	21943	54334	88773	107015	105742	143783
Južna Bačka	553027	593666	117608	5088	11650	894964	-	2582	-	10266	12301	16595	20920	49023	80236	98060	115790	149584
Srem	309981	335901	91777	3670	7981	859433	-	2098	-	8038	10502	14639	16774	36174	62632	63894	61081	84136

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 4: EA p.c. (din.) and unemployment rate (%) in the districts of Serbia 2000 - 2007

district	EA p.c.								unemployment rate							
	2000	2001	2002	2003	2004	2005	2006	2007	2000	2001	2002	2003	2004	2005	2006	2007
Beograd	883	2112	3276	4368	6668	8465	10693	13272	18,3	20,3	24,7	22,9	21,1	18,9	18,3	15,6
Mačva	337	843	1260	1536	2214	2897	3325	4339	34,7	36,8	42,4	45,8	44,3	43,0	45,1	39,8
Kolubara	448	1132	1722	2015	2734	3584	4334	6059	24,7	26,6	28,7	30,3	28,9	27,4	27,5	20,8
Podunavlje	408	1069	1612	2296	3212	4251	5412	6717	29,1	29,5	31,8	34,4	32,8	33,5	36,1	29,2
Braničevo	509	1111	1744	2145	2909	3462	4343	6021	18,5	19,2	21,1	21,6	19,3	19,8	20,6	19,4
Šumadija	538	1352	2111	2495	3380	3970	4572	5619	23,8	26,4	30,6	33,0	31,2	30,3	33,4	34,3
Pomoravlje	476	1169	1860	2182	3060	4087	5037	6596	28,1	30,4	33,1	36,8	35,1	28,3	31,3	29,0
Bor	730	1414	1963	2073	2875	3358	4425	5935	19,9	20,4	27,6	32,6	30,5	29,8	32,9	31,2
Zaječar	481	1166	1795	2169	2639	2979	3550	4674	21,4	23,4	27,8	30,8	32,0	32,0	33,3	32,3
Zlatibor	509	1225	1824	2087	2791	3379	4253	5527	31,3	32,3	36,4	38,9	37,5	38,2	38,2	35,3
Moravički	525	1325	1808	2008	2710	3305	4042	5178	26,4	25,7	30,0	31,9	33,5	32,1	34,6	30,8
Raška	368	1015	1599	2008	2821	3487	4060	5330	37,8	37,7	40,2	43,9	41,8	37,8	38,3	39,7
Rasina	545	1197	1751	1891	2459	2951	3617	4480	29,4	30,2	35,4	37,0	34,9	34,2	35,2	35,0
Nišava	454	1191	1910	2370	3237	3931	4619	6007	37,8	36,5	38,9	41,9	38,2	32,4	34,7	34,6
Toplica	293	787	1265	1347	1604	1996	2503	3251	35,2	35,7	37,7	42,4	41,4	42,9	44,2	45,2
Pirot	412	1186	1852	2471	3095	3578	4175	5384	29,2	28,9	29,3	30,4	31,6	31,6	37,3	36,7
Jablanica	351	848	1300	1506	1815	2118	2734	3058	36,0	40,0	42,9	43,5	44,0	42,1	45,0	48,1
Pčinja	542	1158	1556	1760	2226	2772	3248	3962	29,7	31,1	34,6	38,3	38,2	40,6	43,6	41,5
Severna Bačka	606	1609	2540	2969	3943	4756	5965	7371	29,2	29,5	32,3	35,5	34,1	32,1	32,1	21,6
Srednji Banat	601	1551	2325	2567	3038	3665	4441	5532	33,3	33,6	38,2	41,6	40,2	38,6	40,5	38,1
Severni Banat	660	1722	2508	2816	3376	3980	4636	5936	30,5	33,4	38,6	40,8	36,7	32,4	33,0	29,5
Južni Banat	677	1705	2428	2834	3573	4552	5262	6854	33,9	35,3	38,8	39,6	38,0	34,7	36,6	32,4
Zapadna Bačka	548	1434	2298	2558	3245	4011	4775	5907	32,5	33,7	38,6	41,7	39,4	39,3	38,6	35,5
Južna Bačka	834	1990	3163	3828	5518	7017	8537	10723	28,8	30,2	32,1	32,7	28,5	28,2	28,3	23,1
Srem	481	1210	1808	2091	2667	3340	3699	5020	32,1	34,6	40,5	43,1	43,1	39,5	43,3	35,3

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 5: Complementary characteristics of regional development in Serbia

district	education structure 2002			average wages and salaries (din.)								employment structure 2001 (%)			employment structure 2007 (%)			2007	
	primary and lower	secondary	tertiary	2000	2001	2002	2003	2004	2005	2006	2007	primary	secondary	tertiary	primary	secondary	tertiary	natality	mortality
Beograd	520412	550176	276611	2858	6854	11023	14314	17802	22025	27476	34620	1,85	36,50	61,64	1,50	28,39	70,11	9,9	12,5
Mačva	189414	68252	18961	1735	4290	6787	8927	11523	14069	17748	22865	3,95	48,92	47,13	3,39	37,25	59,37	8,7	14,4
Kolubara	112865	38654	11323	1948	4849	7378	8904	11229	14959	18369	23952	2,76	47,42	49,82	3,08	53,00	43,92	7,8	14,6
Podunavlje	119023	43554	12720	1822	4696	7158	10372	13598	18012	23471	30270	3,05	56,32	40,63	2,27	50,75	47,00	8,8	13,8
Braničevo	125947	33481	9220	2755	6061	9553	11709	14268	17448	21529	28712	6,20	51,98	41,84	4,49	42,42	53,10	7,6	15,6
Šumadija	160961	68539	24002	1968	5004	8098	9858	12163	14761	18175	22882	1,35	55,63	43,02	1,20	49,27	49,54	9,4	14,2
Pomoravlje	133799	45090	14327	2133	5264	8175	9966	11972	14409	18112	23700	2,92	52,47	44,59	2,90	45,25	51,87	8,1	16,3
Bor	85837	29657	9169	2518	4883	7242	8506	11098	13482	18250	26487	1,89	58,58	39,55	1,79	48,61	49,61	7,2	16,5
Zaječar	85097	26936	8280	1866	4505	7303	9038	10686	12873	15858	20557	4,77	52,63	42,58	4,32	44,18	51,51	7,1	19,8
Zlatibor	180466	61030	19750	2027	4999	7804	9558	11907	14719	18323	24098	2,61	58,42	38,98	2,09	49,24	48,68	8,8	11,9
Moravički	123188	51802	16020	1990	4721	7062	8082	9992	12731	16649	21647	3,59	63,82	33,46	2,83	50,52	46,66	8,3	13,6
Raška	157184	58252	19222	1903	4563	7404	9381	11969	14541	17005	21939	3,52	47,85	48,63	2,64	37,84	59,52	12,8	11,7
Rasina	149724	52302	18850	2323	5119	7763	9417	11291	13545	17092	21683	2,33	55,25	42,43	2,83	50,25	46,93	8,4	14,5
Nišava	194647	92598	37790	1821	4869	8141	10428	12550	14742	17828	23076	2,20	45,55	52,25	1,70	35,21	63,09	9,1	14,6
Toplica	62293	17616	5529	1535	4194	6690	7105	8138	10767	13656	18320	3,71	55,00	41,30	4,37	37,69	57,97	8,6	15,1
Pirot	64155	19854	7196	1525	4368	6317	7983	9873	12377	15845	20095	2,42	62,86	34,71	1,73	56,05	42,24	7,4	18,2
Jablanica	140322	46807	13864	1706	4113	6368	7585	8459	10065	13581	18605	4,72	54,03	41,24	4,19	38,13	57,69	8,3	14
Pčinja	128831	37769	12085	2353	5020	6833	7957	9946	12820	15959	20541	2,99	60,74	36,26	2,27	46,96	50,77	11,5	10,8
Severna Bačka	110756	42893	15343	2382	6247	9995	11645	13636	16414	21054	25876	13,12	45,71	41,17	8,67	39,90	51,44	9	15,7
Srednji Banat	115264	45016	15322	2524	6622	10160	11607	13639	16822	20616	25685	13,32	47,07	39,61	11,57	40,44	48,00	8,8	16,1
Severni Banat	98883	30602	10452	2590	6807	10628	12481	14097	17047	20224	25698	12,60	53,95	33,43	9,11	46,01	44,89	8,4	16,6
Južni Banat	175205	67006	21757	2849	7283	10685	12797	14995	18499	22529	28859	12,99	47,90	39,12	10,53	42,84	46,64	9,3	14,8
Zapadna Bačka	121496	46262	13872	2282	5971	9848	11521	13565	16906	20305	25998	16,41	44,91	38,68	13,36	38,35	48,30	7,5	16,1
Južna Bačka	279983	153068	64660	2904	7153	11508	13782	16413	20039	24192	30306	7,09	42,86	50,06	6,13	34,62	59,26	10,8	12,8
Srem	179159	82104	20675	2168	5510	8546	10619	12860	15848	20237	26318	14,10	45,56	40,35	9,16	34,49	56,35	8,2	13,6

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 6: Census populations, NI p.c. 1989, 1996 - 2004 and EA p.c. 2000 - 2007 in Serbian municipalities

	population		NI p.c. (din.)										EA p.c. (din.)							
municipality	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Barajevo	21647	24641	61127	4647	4657	5978	7394	13716	25550	25071	33758	37442	191	514	818	1214	1729	2212	3475	5068
Voždovac	161376	151768	45712	7163	8652	13314	16467	29774	50103	77243	89032	130098	475	1137	1886	2494	4255	5398	6818	8685
Vračar	69680	58386	132125	11800	20098	38473	33365	83272	117382	196931	259821	396804	1161	2966	4881	8674	15485	18645	24957	26632
Grocka	69448	75466	45725	4801	5578	9653	9140	19426	37303	42791	44364	61757	169	574	966	1259	2022	2721	3430	4854
Zvezdara	140483	132621	52472	5417	6806	9789	12628	28039	38391	65414	89752	105197	531	1243	1994	2683	4500	5706	7165	8365
Zemun	181692	152950	132574	10859	12647	15052	18588	40774	76523	99479	115013	156173	714	1797	2939	3488	5065	6060	7985	9973
Lazarevac	58882	58511	173814	17263	27271	34640	28721	41627	78089	145674	193461	240585	1970	4076	5621	6622	8218	9420	11546	14679
Mladenovac	56389	52490	76028	6225	8030	10812	13086	24243	44066	57660	60579	89367	436	1044	1436	1865	2535	3152	3587	4599
Novi Beograd	224424	217773	102804	8179	13521	23109	30101	49126	78567	152800	203680	329463	759	1767	2820	4029	6963	9639	12584	16468
Obrenovac	70234	70975	107722	5018	12119	16291	15446	17091	17810	54485	64396	106320	584	1369	2030	2423	3239	4395	5165	7218
Palilula	156587	155902	115639	10954	13851	22361	21247	52655	82412	108552	120416	176373	1012	2344	3682	4430	6342	8298	10290	12580
Rakovica	97752	99000	75497	4148	6348	7551	6040	14432	16048	14158	31744	46829	175	629	925	1355	2412	3080	3672	4825
Savski Venac	47682	42505	229704	33352	41972	61518	69356	179706	175715	374560	418004	771970	4406	11302	18321	24201	33955	43218	53324	69370
Sopot	20527	20390	52475	6143	7751	10055	11292	25899	69139	79371	97589	131328	371	1185	2376	3428	4518	5624	6982	8099
Stari Grad	70791	55543	284160	33233	46940	61949	74919	184879	251728	425541	537076	687667	3876	8761	12561	18391	27479	35360	43171	51691
Čukarica	154632	168508	72034	6030	6163	11023	12361	26753	34414	51758	66067	86194	374	1012	1557	1979	3144	3920	5044	6476
Bogatić	34438	32990	54898	6873	7532	10024	16087	33036	60242	58019	58329	67937	145	500	839	1072	1465	1841	1658	2255
Vladimirci	23335	20373	45914	5824	6792	8395	12918	26727	51051	53189	51055	69405	152	371	593	768	966	1513	1876	2035
Koceljeva	17064	15636	43226	6276	6739	9910	13939	30137	50870	54085	61929	75414	210	642	968	1238	1676	2195	2572	3292
Krupanj	21879	20192	47421	4703	5608	6755	8834	22211	30994	37729	39614	43085	125	329	506	699	1083	1149	1577	2198
Loznica	86875	86413	78518	4247	5176	7575	10431	22852	39800	47000	45170	55559	357	734	998	1145	1651	2343	2483	3709
Ljubovija	18391	17052	40783	7297	7629	11756	15896	25991	48871	61309	66724	74130	331	838	1520	1426	2035	2836	3755	4875
Mali Zvornik	14029	14076	54598	5246	6686	9552	8762	21486	27460	38054	43533	53789	521	1062	1677	2176	2825	3275	3646	4595
Šabac	123633	122893	50881	7045	9228	12424	14533	26950	52425	65893	71781	128117	444	1197	1787	2203	3228	4001	4848	6016
Valjevo	98226	96761	86399	7210	9271	14051	16869	32101	48279	64451	75328	90285	540	1431	2188	2550	3454	4643	5753	8138
Lajkovac	17716	17062	46277	6486	11707	13169	16442	34812	45964	73229	77322	97093	800	1754	2520	2860	3567	4170	5033	6739
Ljig	15912	14629	57692	5449	7045	9276	11972	25837	39786	45912	56090	70970	217	624	1104	1336	2006	2648	3161	4414

municipality	population		NI p.c. (din.)										EA p.c. (din.)							
	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Mionica	17368	16513	56810	5907	7330	10139	15604	31675	55839	53722	59210	76872	192	433	585	676	1104	1470	1818	2423
Osečina	16745	15135	47753	5858	7125	11968	15276	32006	46870	61766	67118	69955	286	570	820	1149	1503	1526	1743	2397
Ub	34593	32104	48981	5883	7773	10210	13902	28529	50514	53626	56596	69910	238	631	1029	1122	1482	2080	2132	2923
Velika Plana	51150	44470	47438	5402	6141	9634	10824	25356	39914	55803	62151	72918	231	810	1443	1785	2184	2536	2986	4086
Smederevo	115617	109809	82607	5901	9836	13111	8124	31700	39780	47415	56798	80540	537	1268	1756	2904	4175	5568	7071	8463
Smederevska Planka	59822	56011	71038	5105	7318	10463	10520	26497	46953	53519	60913	74977	290	880	1476	1509	2041	2852	3782	5094
Veliko Gradište	27174	20659	54695	5413	6260	9218	13193	29972	51441	74969	78698	90228	188	429	746	876	1370	1658	1872	2513
Golubac	12513	9913	29571	4771	5746	9494	11176	23021	39027	49162	66044	70784	267	611	886	1041	1544	1929	2217	3208
Žabari	19347	13034	34466	5877	7882	9914	12625	26341	49439	75653	80943	93996	106	280	521	674	922	1228	1537	2010
Žagubica	17777	14823	30881	3268	5800	6340	9020	15217	29797	26901	31895	37849	237	463	740	1169	1622	2000	2496	2942
Kučevo	25649	18808	35792	4207	4749	5977	10017	31192	45026	49594	44623	57112	242	580	918	1229	1808	2405	3084	3480
Malo Crniće	19940	13853	33104	3786	5928	6239	9307	20886	40488	53310	51738	64481	79	204	406	541	741	1029	1284	1942
Petrovac	46414	34511	35951	4800	5520	7282	9136	20532	35001	49816	55325	62436	270	640	1157	1397	1949	2494	3055	4187
Požarevac	84678	74902	104322	9367	12446	17916	14070	13296	17295	86747	106563	148139	988	2096	3154	3784	4929	5584	7125	10043
Aranđelovac	47618	48129	66908	7726	11061	16563	18511	44718	65299	77773	92360	106466	667	1689	2243	2593	3434	4039	5007	5443
Batočina	22939	20448	50263	7346	9133	12433	17351	41193	46965	55312	63139	94397	461	1110	1708	1826	2375	2745	2904	3261
Knić	18724	16148	40444	5741	6697	9346	13437	29812	61735	72065	79658	94233	172	424	737	881	1299	1601	2311	2593
Kragujevac - grad	180084	175802	60690	5093	5989	10423	8126	14968	32300	38989	47890	66908	596	1513	2490	3018	4105	4759	5313	6734
Rača	15216	12959	72887	5120	6907	8675	10141	24580	45669	54114	52884	70774	215	481	868	969	1466	2004	2147	2723
Topola	27579	25292	55826	7520	9478	13826	13638	30580	60242	70624	80611	102222	336	744	1014	1000	1220	1610	2151	3006
Despotovac	33869	25611	30570	4104	6977	13839	14113	29538	33900	93479	130359	100053	535	1238	1993	2537	3060	3459	4117	4884
Jagodina	77226	70894	75375	7856	9075	12348	13599	26589	48481	65413	74577	81713	443	1255	2307	3027	4129	6490	7185	9578
Paraćin	64119	58301	60918	7154	7672	10958	15915	36859	54347	68977	62205	94199	691	1546	2080	1974	2719	3066	4403	5547
Rekovac	17011	13551	43807	5244	5126	7407	9865	26048	42039	50034	52208	54070	202	537	892	1200	1508	1480	1464	2314
Svilajnac	33136	25511	49311	5538	7270	8212	9217	24466	40356	52268	70531	82621	287	711	1097	1419	2330	2988	3562	5124
Ćuprija	38747	33567	35938	5415	6576	9402	6993	16188	41291	55993	65228	71942	382	918	1373	1549	2550	2931	4338	5812
Bor	59900	55817	172280	12521	25626	18816	14094	31158	36662	32848	13605	40486	986	1850	2429	2309	3294	4054	5451	6988
Kladovo	31881	23613	78787	8626	12198	13764	4875	13977	17382	55486	48868	121559	429	1053	1579	1876	2570	3182	3798	5259
Majdanpek	27378	23703	144588	6593	10976	14818	10781	19594	29366	25135	12350	-4	903	1499	1999	2175	2976	3504	5474	7216

	population		NI p.c. (din.)										EA p.c. (din.)							
municipality	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Negotin	59559	43418	65566	5500	7257	12295	8083	23430	33204	60895	70921	92772	458	998	1551	1908	2491	2544	2831	4097
Boljevac	19384	15849	48362	3627	5995	7207	11888	23244	41158	41653	52363	62270	355	800	1429	1885	1734	2210	2542	3190
Zaječar	72763	65969	67531	7186	9631	12721	15241	39117	59226	55133	63455	68967	600	1472	2189	2532	3145	3582	4125	5563
Knjaževac	44036	37172	79667	5570	6399	9669	11255	28475	47014	49745	55105	61113	315	721	1082	1237	1610	1994	2326	3061
Sokobanja	21948	18571	54720	4684	6702	7946	12464	21165	52030	60817	65064	64693	553	1412	2256	3290	3960	3563	5102	6280
Arilje	20335	19784	86905	7185	6049	12019	15634	39816	67322	88910	114547	97953	432	1062	1684	2167	3163	3722	5685	6681
Bajina Bašta	29747	29151	80413	6340	8724	11289	7543	17239	19796	37257	50641	77658	422	909	1256	1722	1917	2357	2537	4455
Kosjerić	15478	14001	64080	10143	10641	15596	21405	57352	84416	93098	119915	158806	681	1670	2383	2327	2830	4003	5457	7784
Nova Varoš	21812	19972	87867	7528	7166	9949	10903	23824	38464	49943	57464	66725	432	983	1315	1483	2042	2500	3401	4525
Požega	33578	32293	62033	7410	8556	12002	13628	28414	44529	55519	62235	84422	397	1041	1725	2001	2645	2850	3777	4689
Priboj	35951	30377	66590	4253	4323	6723	7812	20612	25715	37964	40502	45499	348	906	1340	1614	2418	3005	3731	4622
Prijepolje	46525	41188	42532	3809	4232	6321	8958	17682	26307	25532	44336	41928	333	760	1077	1130	1571	2038	2480	3240
Sjenica	33681	27970	38819	2458	3462	5110	6333	11517	24681	31356	28925	33468	283	583	797	974	1522	1829	1785	2471
Užice	82723	83022	101832	7926	10157	16454	16864	42867	49609	65284	75698	101117	808	1983	2991	3307	4311	5248	6579	8332
Čajetina	15996	15628	72537	6583	7677	10028	12687	34239	52600	57904	70862	84392	532	1240	1972	2502	2823	3286	4299	5545
Gornji Milanovac	50087	47641	111597	11626	13027	21471	24163	47540	79176	82255	89507	127953	720	1583	2233	2628	3315	3944	4667	5477
Ivanjica	36686	35445	80623	6648	8442	12443	15905	36578	60128	69796	58571	75644	347	889	966	903	1203	1859	2569	3980
Lučani	27167	24614	55981	5867	7903	10159	9895	33685	55401	73063	77920	83758	414	1333	1716	1518	1956	2316	3126	3947
Čačak	116808	117072	90877	7221	9226	14261	17126	31449	64309	70151	83627	106284	520	1365	1912	2185	3048	3586	4289	5580
Vrnjačka Banja	25875	26492	47001	6157	8259	11509	16604	36314	54304	62352	75833	88050	445	1241	2609	3339	4141	4552	5553	7325
Kraljevo	125772	121707	63184	6236	6884	10790	11808	27432	34269	46830	55052	74288	444	1254	2022	2455	3372	4429	5296	6785
Novi Pazar	85249	85996	40204	2545	3222	4754	5732	14885	21794	31920	36576	43524	289	776	1105	1449	2319	2712	2864	3914
Raška	28747	26981	75373	5580	7834	8912	10868	20152	31649	41751	47940	68785	438	1066	1629	2147	2796	3313	4106	5165
Tutin	34631	30054	10560	1236	1533	2160	2822	5666	11393	20279	23197	22759	100	323	470	630	941	1311	1519	2447
Aleksandrovac	33215	29389	55663	5476	7319	9478	11833	25625	39744	53498	52694	73077	337	753	1033	1223	1583	2082	2446	3179
Brus	21331	18764	50204	3563	4416	6769	8537	21571	29398	44352	47834	54084	224	606	868	899	1189	1499	1729	2440
Varvarin	23821	20122	36110	3295	3959	5684	9338	21332	26476	39615	44393	49266	168	401	772	1018	1427	1901	2369	2644
Kruševac	138111	131368	106458	8936	12165	16750	18220	35661	61442	68163	76993	89627	649	1461	2251	2469	3145	3592	4492	5502
Trstenik	54873	49043	111204	5323	7240	10180	11285	31724	46623	55511	57176	66092	720	1335	1629	1542	2112	2840	3340	4224

municipality	population		NI p.c. (din.)										EA p.c. (din.)							
	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Ćićevac	11757	10755	63803	6243	7561	10547	13595	30463	48052	59474	61992	70458	367	977	1459	1561	2017	2155	2815	3121
Niš	248086	250518	95725	8562	11245	15488	16670	36908	63120	87646	93482	141568	559	1498	2383	2951	3989	4865	5675	7259
Aleksinac	63844	57749	35155	4149	6123	8165	10340	23987	41890	43805	48557	62597	390	825	1323	1519	2048	2456	2801	3630
Gadžin Han	12990	10464	41584	5697	7436	10554	13619	37069	56048	74971	86580	106289	364	762	1465	1996	2672	3639	4077	5837
Doljevac	20662	19561	44688	3073	5174	6079	5679	16070	32774	33333	41974	46662	92	293	553	714	997	1109	1344	2054
Merošina	16139	14812	33782	4337	5781	8334	9630	25267	36300	45326	49240	57014	101	298	489	536	785	1295	1558	2349
Ražanj	13582	11369	27574	2908	3887	4786	6176	15231	30339	33404	34152	41476	105	274	509	583	831	978	1240	1874
Svrljig	20740	17284	72728	4108	4489	5906	8040	17225	32922	33702	33725	33518	160	532	686	878	1274	1297	1858	2777
Blace	15709	13759	51300	5048	6493	8893	13134	30390	38998	47608	59019	81535	199	437	690	690	1029	1096	1518	2132
Žitorada	19545	18207	35327	3796	5111	6140	7667	17454	38509	42227	45153	60886	153	405	697	762	1050	1259	1816	2666
Kuršumlija	23590	21608	45032	4006	4697	7944	10225	23588	36267	43355	43588	46374	363	1052	1659	1346	1670	1708	2084	2837
Prokuplje	52969	48501	59920	4640	6396	8331	9541	27158	37770	49580	51240	61585	345	920	1466	1762	1954	2694	3300	4041
Babušnica	19333	15734	40995	3233	4112	6486	8634	17223	37977	46299	50266	55780	313	944	1486	1520	1764	1935	2183	2956
Bela Palanka	16447	14381	57417	3630	3800	4688	6102	16389	24946	32831	34037	39778	171	393	732	950	1144	1243	1450	2069
Dimitrovgrad	13488	11748	69236	5012	6332	8904	10281	18269	29388	35799	41540	61010	205	590	723	907	1134	1880	2647	3528
Pirot	67658	63791	80967	6891	9706	13830	16613	30995	61955	68611	89326	104191	526	1521	2406	3356	4253	4729	5497	6932
Bojnik	14498	13118	37369	3794	4828	5635	6569	20063	36497	37882	42030	47256	261	632	916	764	1342	1176	1672	1907
Vlasotince	34302	33312	37481	3079	4105	5618	7277	18696	25421	34889	32648	35844	327	781	998	1021	1211	1417	2057	2703
Lebane	27068	24918	39006	3129	3421	4906	8937	16999	29374	34926	32572	34659	230	409	547	628	736	882	1078	1446
Leskovac	161986	156252	66110	4571	6823	8258	10239	23364	38114	48837	54623	64785	388	956	1499	1761	2150	2510	3173	3480
Medveđa	13368	10760	22169	2895	3583	5087	6323	9259	14303	18592	23755	25510	179	505	907	1021	1126	1221	1485	2061
Crna Trava	3789	2563	18191	3061	4513	4909	9075	13964	24016	33876	20262	60296	819	2232	4048	5621	7567	10236	13643	7540
Bosilegrad	11644	9931	17383	1683	2619	4474	6235	15508	23318	23466	21393	21237	291	672	992	1176	1366	1718	2434	3362
Bujanovac	49238	43302	25416	3678	5191	6154	6922	17640	26292	39468	45433	40468	340	812	1175	1521	1825	2456	2684	3491
Vladičin Han	25255	23703	51611	5528	6419	10699	13008	30879	42509	45555	39477	40468	526	1195	1341	1306	1430	1670	2193	2446
Vranje	86518	87288	85251	8277	10056	16249	22484	44538	63217	77067	83808	99565	790	1572	2116	2359	3105	3857	4347	5186
Preševo	38943	34904	18988	1718	2298	3120	3395	6134	9352	15166	20848	22001	161	402	585	694	887	1068	1463	1865
Surdulica	24785	22190	55078	5657	6827	10018	9243	19895	30637	48734	74090	77575	645	1640	2383	2704	3347	4195	4954	5810
Trgovište	7146	6372	36660	3820	3163	5486	7688	17099	31194	26579	26737	26836	445	906	1144	1223	1483	1734	2551	3560

municipality	population		NI p.c. (din.)										EA p.c. (din.)							
	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Bačka Topola	40473	38245	118234	8892	12515	17083	21329	46148	84645	90979	76027	105456	544	1437	2207	2253	2681	3263	3938	4685
Mali Idjoš	14394	13494	67583	5766	8135	7878	11014	27393	41515	47209	43462	59844	281	719	1250	1208	1351	2037	2445	3359
Subotica	150534	148401	94211	10613	14723	20486	22020	45242	79890	91857	107342	140969	653	1718	2753	3331	4547	5404	6857	8510
Žitište	22811	20399	81597	8264	9881	12113	22060	54899	87877	71567	57516	101593	269	738	1217	1343	1549	2056	2578	3609
Zrenjanin	136788	132051	107238	10687	12558	17466	16228	25179	73133	84281	81207	138111	705	1816	2711	3051	3638	4460	5365	6731
Nova Crnja	14538	12705	113284	15036	18895	26393	11212	30170	69456	59024	61645	90168	316	807	1268	1360	1799	1943	2436	2690
Novi Bečej	28788	26924	83540	4575	4766	7218	19047	41312	72579	69660	60066	84615	563	1458	2116	2115	2358	2426	3125	3601
Sečanj	18438	16377	91894	8862	10001	12057	16299	37883	75060	70683	57798	86346	463	1152	1729	1777	2192	2594	2892	3539
Ada	21506	18994	146695	7979	9421	13689	18554	43827	68253	76462	61196	88395	581	1369	2101	2317	2916	3676	4149	5340
Kanjiža	30668	27510	88231	11667	13574	21214	30395	66942	127038	121160	110194	131151	819	2168	3195	3505	3861	4142	4750	6031
Kikinda	69743	67002	92866	11236	13619	18680	17347	49976	97265	82592	84832	146859	707	1871	2576	3032	3591	4320	5144	6429
Novi Kneževac	13816	12975	108885	11335	14534	22727	32546	60311	105121	86942	78745	103739	642	1611	2481	2759	3316	3565	3728	5033
Senta	28779	25568	125756	9774	11029	15914	17492	30454	74071	97676	80488	158251	644	1631	2523	2682	3661	4434	5291	7158
Čoka	15271	13832	146617	8447	9724	12828	10830	28296	56877	59270	48636	71407	280	776	1301	1198	1459	1957	2239	2764
Alibunar	26535	22954	80110	6964	9365	10345	16474	30159	61643	55394	58199	65121	334	897	1242	1111	1304	1332	1659	2639
Bela Crkva	23707	20367	51644	6340	7238	9685	14346	27001	47162	50827	59986	77147	243	805	1141	1383	1345	2137	2574	3129
Vršac	58228	54369	123129	13126	16602	22996	26892	67734	124865	123547	122583	176189	862	2127	3095	4104	5331	6320	7402	8962
Kovačica	30469	27890	104338	6761	7900	11080	15660	34548	58911	57762	54383	79975	364	914	1319	1416	1410	2036	2021	2822
Kovin	38263	36802	89527	7412	9283	12312	15595	35152	55653	60072	60417	92100	438	1097	1577	1688	1969	2470	2787	4033
Opovo	11384	11016	80681	6448	8802	12316	19032	36939	66575	60467	67023	113447	145	819	1208	1321	1324	1150	1144	1276
Pančevo	125261	127162	125844	8465	15224	20747	18168	45886	75787	131176	240051	225787	932	2264	3189	3699	4942	6457	7568	9983
Plandište	14518	13377	127565	8948	11634	15009	15228	32187	71651	57979	44419	72801	271	885	1188	1417	1636	1941	2297	2759
Apatin	32999	32813	105671	13473	18349	25619	31962	106932	180930	234153	269013	308535	484	1338	2243	2639	3855	5000	5880	6888
Kula	49311	48353	123977	9120	12407	16810	23407	43492	71678	94105	80693	131504	518	1388	2128	2441	2797	3297	3760	4679
Odžaci	37501	35582	83644	7856	10610	14685	17099	46236	67641	79335	72759	108383	448	1268	1910	1874	2593	2929	3414	4307
Sombor	96105	97263	120504	9975	11710	17948	19648	45016	74289	80506	74862	107164	620	1551	2534	2827	3447	4349	5312	6648
Bač	17249	16268	94982	8974	7890	13009	15413	40271	55296	70274	74667	82949	220	815	1655	2029	2289	3031	3601	4477
Bačka Palanka	58835	60966	137876	10650	13463	19281	22527	54382	96237	104882	100268	134612	575	1466	2321	2609	3383	4207	5064	6699
Bački Petrovac	15662	14681	58709	5836	6347	8556	12376	30593	49346	57492	58275	76376	239	944	1682	1972	2322	3040	3426	4044

municipality	population		NI p.c. (din.)										EA p.c. (din.)							
	1991	2002	1989	1996	1997	1998	1999	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2005	2006	2007
Beočin	14848	16086	117000	14595	18703	21868	8212	39439	73974	115188	114211	117944	1349	2767	4510	4055	5533	6073	7275	8524
Bečej	42685	40987	136613	13960	15872	22828	31004	69517	125596	127244	142276	213613	694	1735	2868	2894	3578	4291	4719	5294
Vrbas	46405	45862	154960	13574	13397	20715	22901	53810	102803	118957	117214	149115	847	2100	3399	4022	4792	6339	7684	8848
Žabalj	25823	27513	72546	8783	9139	12404	13061	27262	67512	71498	51529	102921	299	764	1517	1588	2113	2442	2871	3812
Novi Sad - grad	265464	299294	122277	10046	13145	16612	22393	52151	76480	103228	140875	175960	1125	2586	3990	5058	7769	9924	12157	15293
Srbobran	17365	17855	106632	8413	8834	9991	17053	38120	80113	71034	60753	76154	245	711	1317	1199	1362	1654	2160	3118
Sremski Karlovci	7534	8839	38509	6411	7460	11149	11884	31256	43978	36723	50816	49798	268	673	1037	1107	1524	1911	2056	2452
Temerin	24939	28275	78420	6524	6953	10730	14709	30480	53613	72344	50481	71568	355	870	1504	1919	2720	3581	4639	5903
Titel	16218	17050	70240	6850	5549	10433	14792	29131	48823	47409	48300	60580	259	705	1166	1295	1573	1811	2109	2409
Inđija	44185	49609	79971	6740	8770	12215	12314	27152	50465	49839	49458	71699	399	965	1522	1823	2542	3359	3620	5410
Irig	11696	12329	92790	8157	9465	14637	19240	44339	78004	68075	76259	87355	257	817	901	1156	1349	1686	1952	2826
Pećinci	20077	21506	106180	8627	9738	11506	19901	34961	70747	68791	71738	88914	319	861	1437	1943	1926	3019	3359	4634
Ruma	55087	60006	101123	10164	14029	20224	18974	38695	75271	100059	67491	108999	455	1165	1724	2060	2682	3159	3941	5035
Sremska Mitrovica	85328	85902	93186	8115	10735	14585	16684	41594	63227	60143	60472	77115	702	1641	2381	2431	2698	3180	3977	5134
Stara Pazova	57291	67576	64840	6420	8254	11723	14507	30340	52974	47785	60073	75625	406	1163	1807	2247	3184	4167	3807	5338
Šid	36317	38973	120421	8401	11009	15579	20605	38327	63754	59125	58737	89505	354	940	1453	1707	2612	3304	3786	4963

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 7: Macroregions in Serbia

Source: own construction

Annex 8: Census populations and NI p.c. 1989 - 2004 in Serbian macroregions

region	population		NI p.c. (Serbia = 100)															
	1991	2002	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Beograd	1602226	1576124	123,7	141,1	131,6	119,9	-	109,0	-	126,0	131,4	137,9	134,8	133,4	121,4	142,5	153,3	164,3
Istočna Vojvodina	729564	688274	124,9	120,1	112,9	105,6	-	129,1	-	120,6	118,8	115,8	111,5	118,1	141,1	118,3	122,5	117,3
Zapadna Vojvodina	1284325	1343718	126,0	117,7	123,1	144,8	-	126,7	-	122,8	118,1	115,2	121,6	124,1	127,3	117,5	112,5	108,5
Centralni region	1112872	1074221	83,0	88,6	85,0	87,1	-	86,8	-	80,0	76,6	80,8	79,4	80,3	82,2	72,1	70,8	66,2
Istočni region	1081038	922340	83,2	82,0	73,3	68,5	-	72,6	-	82,7	88,4	80,6	74,3	83,4	79,4	74,7	71,7	66,8
Južni region	1055740	1058099	72,5	71,4	79,1	82,2	-	89,5	-	74,9	75,6	73,9	76,3	79,1	80,0	74,6	71,3	68,1
Zapadni region	876030	835225	76,8	76,3	74,6	70,0	-	83,5	-	79,0	73,6	75,0	81,5	82,1	80,0	72,8	71,2	69,0

Source: publications of RZS (see References, Statistical sources), own calculations

Annex 9: EA p.c. 2000 - 2007 in Serbian macroregions

region	EA p.c. (Serbia = 100)							
	2000	2001	2002	2003	2004	2005	2006	2007
Beograd	145,7	142,5	144,3	156,7	172,0	174,5	180,2	176,3
Istočna Vojvodina	107,2	112,2	106,5	98,6	86,8	85,6	82,0	82,9
Zapadna Vojvodina	109,8	111,3	114,3	109,9	108,7	109,2	107,4	107,3
Centralni region	81,0	82,2	80,3	75,9	73,9	71,2	69,0	68,8
Istočni region	83,9	79,1	78,7	78,2	76,6	76,5	78,6	81,2
Južni region	70,8	71,9	71,7	70,1	65,1	62,9	61,5	60,7
Zapadni region	70,4	71,0	69,5	66,5	65,8	66,7	65,8	68,8

Source: publications of RZS (see References, Statistical sources), own calculations